BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition of DeltaCom, Inc. for order determining DeltaCom, Inc. not liable for access charges of KMC Data LLC, and Hypercube Telecom, LLC	)	Docket No. 090327-TP Filed: June 15, 2010

DIRECT TESTIMONY
OF
J. GREGORY SIDAK

On behalf of

Hypercube Telecom, LLC

June 15, 2010

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APA ___
ECR ___
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OPC ___
CLK Pt. RPR

QUALIFICATIONS

Q. Please state your name, title, and business address.

A. My name is J. Gregory Sidak. I am chairman of Criterion Economics, L.L.C. in Washington, D.C.; the Ronald Coase Professor of Law and Economics at Tilburg University in The Netherlands; and I am a founding co-editor of the *Journal of Competition Law & Economics*, published quarterly by the Oxford University Press. My business address is 1614 20th Street, Washington, D.C., 20009.

Q. Please briefly describe your background and experience.

A. I have worked at the intersection of law and economics for three decades. At Stanford University, where I earned degrees in economics and law, I studied antitrust and regulation under Professor William F. Baxter in the years immediately before Baxter became head of the Antitrust Division and broke up the Bell System telephone monopoly. In 1981, I became Judge Richard A. Posner's first law clerk on the U.S. Court of Appeals for the Seventh Circuit. The Supreme Court first cited one of my articles on antitrust three years later, when I was twenty-eight years old. Since that time, I have published extensively on antitrust and economic regulation.

I have published six books and more than eighty articles in scholarly journals and am ranked 8th among the top 1,500 legal scholars by the Social Science Research Network in terms of the number of downloads of my writings. My writings have been downloaded more than 47,000 times. Those writings have been cited in additional decisions of the Supreme Court, as well as in decisions of lower courts (including the *Microsoft* antitrust decision). American jurists whose opinions have cited my writings include Justices Stephen Breyer and David Souter, and Judges Frank Easterbrook, Douglas Ginsburg, Stephen Reinhardt, Laurence Silberman, and Stephen Williams.

In 2004, I cofounded the *Journal of Competition Law & Economics*, a peer-reviewed journal published by the Oxford University Press that has become the preeminent international journal on antitrust law. In November 2007, Judge Robert Bork and I filed an amicus brief of antitrust scholars that successfully urged the Supreme Court to grant certiorari in *Pacific Bell Telephone Co. v. linkLine Communications, Inc.* to examine questions about the price squeeze theory of liability under section 2 of the Sherman Act, as well as the more fundamental question of whether the historic *Alcoa* monopolization decision of 1945 has been implicitly overruled by the Court's consumer-oriented antitrust jurisprudence of the past three decades.

As an economic consultant, I have served clients in North America, Europe, Asia, and Australia. They include:

- ATCO Group
- AT&T
- Bell Canada
- Cable & Wireless
- Deutsche Telekom
- Disney
- Exelon
- Hitachi
- Matsushita
- Microsoft
- National Association of Broadcasters
- Newspaper Association of America
- Nippon Telegraph & Telephone
- Panasonic
- Portugal Telecom
- Qualcomm
- Qwest
- The Republic of Mexico
- Teléfonos de México
- Telstra
- United Parcel Service
- Verizon
- Vodafone
- VSNL (the Tata Group)

Law firms with which I have worked as a consultant include:

- Allen & Overy
- Arnold & Porter
- Bennett Jones
- Gibson Dunn & Crutcher
- Herbert Smith
- Howrey
- Hunton & Williams
- Kirkland & Ellis
- Latham & Watkins
- Linklaters
- Malleson Stephen Jacques
- Morgan Lewis
- Morrison & Foerster
- Paul Weiss
- Sullivan & Cromwell
- Vinson & Elkins
- Wiley Rein
- WilmerHale

My consulting engagements have frequently concerned competition and regulatory issues involving telecommunications, the Internet, electronic commerce, and computing. My work routinely involves overlapping issues in antitrust, intellectual property, and constitutional protection of private property and economic activity. A large number of my engagements have been the economic counterparts to a law firm's "controversy practice," in which an adverse development in litigation, regulation, or legislation fundamentally threatens a company's competitive strategy or economic viability. Many of these controversies have been cases of first impression that subsequently generated landmark decisions. My consulting engagements have included:

- liability and remedies questions in the Microsoft antitrust case;
- numerous FCC and state public utilities commission dockets concerning implementation of the Telecommunications Act of 1996;

- earlier antitrust proceedings to vacate portions of the AT&T antitrust divestiture decree;
- numerous matters involving telecommunications deregulation, rate regulation, and industry restructuring in Europe, Asia, and Australia;
- analysis of compensation owed to Cable & Wireless for the premature termination of its exclusive franchise for international calls in Hong Kong following the handover of Hong Kong to the People's Republic of China;
- numerous spectrum auctions and related controversies in the United States and Europe;
- a bench trial in federal court concerning a claim by Bell Atlantic (now Verizon) for a tax refund for an investment credit in infrastructure;
- a test case by U S West (now Qwest) in the Court of Federal Claims to establish that regulated rates set by the Federal Communications Commission for unbundled network elements effected an uncompensated taking of private property;
- antitrust and regulation testimony successfully opposing the proposed merger of direct broadcast satellite operators DirecTV and EchoStar;
- the World Trade Organization's first arbitration pursuant to the General Agreement on Trade in Services (GATS), which concerned the U.S.-Mexico telecommunications dispute concerning international settlement rates for calls from the United States to Mexico;
- stranded cost recovery proceedings and electricity restructurings for investor-owned

utilities in Texas, New York, Pennsylvania, New Hampshire, and New Mexico;

- the first complete acquisition of a U.S. telecommunications carrier (VoiceStream) by a foreign carrier (Deutsche Telekom);
- the European Commission's predatory pricing case against Deutsche Post, at the time one of Europe's largest state-owned enterprises;
- many of the major telecommunications mergers in the United States since the mid-1990s;
- an international arbitration in The Hague over a contractual dispute concerning obligations of India's signatory to the Fiber-optic Link Around the Globe (FLAG) venture to make continuing investments in infrastructure to support the consortium's submarine cable;
- an international arbitration in London over interpretation of a covenant not to compete concerning a joint venture to provide cell phone service in eastern Europe
- the proposed merger of PECO Energy and PSEG;
- competitive and regulatory implications of the WorldCom fraud and bankruptcy
- a fraud action against Salomon Smith Barney initiated by the largest individual outside shareholder of WorldCom;
- a study for a group of incumbent network operators and equipment manufacturers about the effect of infrastructure competition on the rate of broadband penetration in Europe;
- regulation of mobile telephone termination rates;

- analysis for several European incumbent telecommunications operators of regulators' proposals to mandate the structural or functional separation of network operations from network services;
- analysis of proposals to mandate "network neutrality" regulation of the Internet;
- legislative and regulatory proceedings that changed the antitrust and regulatory scrutiny of the U.S. Postal Service, at that time the largest state-owned enterprise in the United States;
- a jury trial in California state court concerning an alleged tie-in by a local operating company of AT&T;
- analysis of "patent holdup" and related antitrust issues in standards-setting organizations in high-technology industries;
- the implications upon remand of the *Stores Block Decision* by the Supreme Court of Canada concerning the private property rights of a public utility; and
- an International Trade Commission section 337 exclusion order proceeding concerning alleged patent infringement in a high-technology industry.

In addition to performing these and other consulting engagements, I served from 2002 to 2006 as a member of the U.S. Advisory Board for NTT DoCoMo, a position in which I briefed the chairman and senior management on emerging regulatory and antitrust trends relevant to Japan's largest wireless telecommunications company.

I have made presentations on antitrust or regulatory matters to principals and staff at the Antitrust Division of the U.S. Department of Justice, the Federal Trade Commission, the Federal Communications Commission, the European Commission's

Directorate General for Competition, the European Commission's Information Society and Media Directorate General, the Australian Competition and Consumer Commission, Ofcom (United Kingdom), the New York Attorney General, the U.S. House Committee on Energy and Commerce, the U.S. Senate Committee on Commerce, Science, and Transportation, Cofitel (Mexico), the Mexican Congress, the Mexican Ministry of Communications and Transport, and the Organization for Economic Cooperation and Development.

From 1992 through 2005, I was a resident scholar at the American Enterprise Institute for Public Policy Research (AEI), where I directed AEI's Studies in Telecommunications Deregulation and held the F.K. Weyerhaeuser Chair in Law and Economics. From 1993 to 1999, I was a Senior Lecturer at the Yale School of Management, where I taught courses on telecommunications regulation with Dean Paul W. MacAvoy. From 2005 to 2007, I was a Visiting Professor of Law at Georgetown University Law Center, where I taught courses on antitrust law and telecommunications regulation.

I have served in the federal government as both an economist and a lawyer. I was Deputy General Counsel of the Federal Communications Commission from 1987 to 1989 and Senior Counsel and Economist to the Council of Economic Advisers in the Executive Office of the President from 1986 to 1987. After leaving government, I practiced law with Covington & Burling in Washington, D.C., on antitrust cases and federal administrative, legislative, and appellate matters concerning telecommunications and other regulated industries. Early in my career, I worked as a

management consultant with the Boston Consulting Group and as an attorney with O'Melveny & Myers.

My most influential books are *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States* (Cambridge University Press 1997), with Daniel F. Spulber, and *Toward Competition in Local Telephony* (MIT Press 1994), with William J. Baumol. The Supreme Court of the United States has cited both books. My scholarly writings have appeared in many journals, including the *American Economic Association Papers and Proceedings*, the *Columbia Law Review*, the *Harvard International Law Journal*, the *Journal of Political Economy*, the *Stanford Law Review*, the *University of Chicago Law Review*, and the *Yale Law Journal*. My essays have appeared in many newspapers and business periodicals, including *The New York Times* and the *Wall Street Journal*.

I have been interviewed and quoted by many newspapers, magazines, and news organizations, including the Asahi Shinbum, the BBC, Bloomberg, *The Daily Telegraph*, *The Economist*, Fox News, *Forbes*, *La Reforma* (Mexico City), the *Los Angeles Times*, the Mainichi newspapers, MSNBC, *The News Hour with Jim Lehrer*, the Nihon Keizai Shinbum (the Nikkei), NPR's *All Things Considered*, the Sankei Shinbum, and the *Wall Street Journal*.

I earned A.B. (1977) and A.M. (1981) degrees in economics and a J.D. (1981), all from Stanford University. I was a member of the *Stanford Law Review*.

My current curriculum vitae is attached as Exhibit__ (JGS-1) to my direct testimony.

INTRODUCTION

Q. What is the purpose of your direct testimony?

A. I have been retained by Hypercube Telecom, LLC (Hypercube), a competitive local exchange carrier (CLEC), to provide expert economic analysis and testimony concerning the refusal of DeltaCom, Inc., an interexchange carrier (IXC), to pay Hypercube for its provision of local exchange access, database queries, and local transport of toll-free 8YY intrastate calls to DeltaCom customers initiated on the networks of wireless carriers (more precisely, providers of commercial mobile radio service (CMRS)).

Q. Please summarize your direct testimony.

A. This controversy is thick with regulatory jargon and institutional history. Moreover, despite the enormous volume of literature on telecommunications regulation, there is a surprising shortage of academic research on the demand for 8YY calling. The one paper I found that directly addressed toll-free calling dealt with the effects of reduced switching costs on competition.[1] Nonetheless, the controversy boils down to a commonsense proposition: Toll-free calls are not free to supply. It requires real costs for Hypercube to deliver an 8YY call from the CMRS carrier's switch, known as the mobile telecommunications switching office (MTSO), to DeltaCom, whose customer has created a toll-free number and invited the public to call it.

DeltaCom, however, prefers to avoid paying those costs. By making Hypercube (or wireless carriers or wireless users) implicitly or explicitly pay the cost

1. V. Brian Viard, *Do Switching Costs Make Markets More or Less Competitive? The Case of 800-Number Portability*, 38 RAND J. ECON. 146 (2007). ¶

of carrying toll-free calls to DeltaCom's network, DeltaCom increases its operating margin and consumes an excessive number of minutes of use on Hypercube's network. But DeltaCom's refusal to pay for all the costs that are necessary to produce its 8YY services is the quintessential example of an externality. Tandem switching is a cost of production that DeltaCom does not internalize when producing its 8YY product. Tandem switching is, instead, a cost that DeltaCom pushes onto third parties.

Negative externalities such as this one harm the public interest because they reduce economic welfare, particularly the incentive to make investments that advance consumer welfare. This negative externality exists solely because of a regulatory artifact, to be explained in detail later in my expert report, which is attached as Exhibit__ (JGS-2), whereby IXCs selling 8YY services can shirk the costs of local access, database query, and transport when the originating carrier is a CMRS carrier rather than a wireline provider of local exchange service, such as the incumbent local exchange carrier (ILEC) or the cable television operator providing telephony service. If, instead, IXCs—and, indirectly, 8YY subscribers—are required to bear a portion of the actual cost of delivering 8YY calls that are initiated on wireless networks, the size of the negative externality recedes, and consumer welfare improves.

Hypercube offers a competitive tandem-switching product that improves network performance and, in the process, remediates the negative externality that DeltaCom has imposed on wireless carriers and their users. DeltaCom, however, denounces Hypercube as an opportunist that is selling an unwanted, useless service. That characterization is misplaced. Hypercube simultaneously (1) relieves the wireless carrier of the burden of switching, querying, and transporting the 8YY call to

DeltaCom, (2) does so in a manner that increases the ubiquity and seamlessness of the nation's telecommunications network, and (3) forecloses DeltaCom's ability to shift to wireless users certain essential costs of producing the 8YY services that DeltaCom sells for a handsome return to its own business customers.

EXECUTIVE SUMMARY AND ISSUES ADDRESSED FROM THE FLORIDA PUBLIC SERVICE COMMISSION'S APRIL 20, 2010 ISSUES LIST

Q. What issues from the Commission's Issue List do you address in your attached report?

A. My report, included here as Exhibit__ (JGS-2), directly addresses Issues 1, 1(a), 1(b), 4, and 6 in the Issues List that the PSC released on April 20, 2010, as an attachment to its *Order Establishing Procedure*.[2] My report also addresses issues concerning the consumer-welfare implications of DeltaCom's withholding of payment to Hypercube.

ISSUE 1

Q. What Services, If Any, Are Being Provided by Hypercube to DeltaCom (or to Other Carriers in the Call Flow) and How?

a. Do Hypercube's Services Fit Into the Regulatory Framework In Florida? If So, How?

b. Is it Appropriate to Include Such Services in Hypercube's Price List?

A. Hypercube provides tandem-switched access service and database query services to DeltaCom for 8YY calls initiated on wireless networks in Florida. In Part I of my report, I explain the competitive tandem-switching service that Hypercube supplies

2. Order Establishing Procedure, Attachment A, In re: Petition of DeltaCom, Inc. for Order Determining DeltaCom, Inc. Not Liable for Access Charges of KMC Data LLC, Hypercube LLC, and Hypercube Telecom, LLC, Dkt. No. 090327 (P.S.C. Fl. Aug. 31, 2009).

and the mechanics of assessing access charges for that service. I provide an example of a typical transaction carried out between Hypercube, a CMRS carrier, and DeltaCom. In carrying 8YY calls from a CMRS carrier's switch and performing the database dip, Hypercube can transport 8YY calls to IXCs (or to ILECs connected to IXCs), thus providing a beneficial service to the routing of 8YY traffic. I show in Part I.B that the rates that Hypercube charges pursuant to its price list for tandem-switched access services have been approved by the PSC. Given the Commission's approval, Hypercube's services clearly fit within the regulatory framework in Florida. Moreover, it is appropriate to include the services that Hypercube provides to DeltaCom in Hypercube's price list. Using the example of a typical transaction between Hypercube and DeltaCom in Part I.C, I show that Hypercube only charges rates pursuant to its Commission-approved price list to DeltaCom for the services that DeltaCom consumes. Thus, both the services that Hypercube provides and the rates that Hypercube charges for those services have been approved by the Commission. It is therefore lawful as a matter of Florida public utility law for Hypercube to charge—and recover—the rates pursuant to its price list for the services Hypercube provides to DeltaCom.

ISSUE 6

Q. Do the Rates, Terms, and Conditions in Hypercube's Price List Comply With Applicable Law? Which Rates, Terms, and Conditions, If Any, Apply to DeltaCom, and How Do They Apply?

A. Yes, Hypercube's rates comply with applicable state and federal law. The rates, terms, and conditions that apply to DeltaCom are those that relate to the tandem-switched access and 8YY database query services that DeltaCom has consumed on

Hypercube's network in Florida. In Part I of my report, I show that Hypercube's price list complies with applicable law because the Commission has approved Hypercube's price list. Because Hypercube has charged DeltaCom only the rates that apply to the services that DeltaCom has consumed, those rates apply to DeltaCom.

ISSUE 4

Q. Do Payments By Hypercube to Wireless Carriers Violate Any State or Federal Law? What Action, If Any, Should the Commission Take With Respect to Such Payment?

A. No, payments by Hypercube to wireless carriers do not violate any state or federal laws, and the Commission therefore should enforce payment to Hypercube for all services that DeltaCom has consumed and continues to consume on Hypercube's network in Florida. In Part II of my attached report, I describe the changes in regulation that have had the effect of precluding a CMRS carrier from recovering from IXCs by tariff the costs of delivering to those IXCs 8YY calls initiated on the CMRS carrier's wireless network. That preclusion of cost recovery for CMRS carriers results in a negative externality, in that 8YY subscribers do not bear the full cost of delivering the 8YY calls that they invited and receive. The negative externality created by the deregulation of CMRS carriers misaligns the incentives of both the cost causer and the cost bearer, therein reducing economic efficiency and harming consumer welfare.

As I explain in Part II.B.7 of my report, in its declaratory ruling on CMRS access charges[3] in 2002 and the *Eighth Report and Order* in 2004, the FCC acknowledged that a CMRS carrier may contract with other carriers to recover the costs of network access. In particular, because CMRS carriers operate in a "detariffed, deregulated environment," they are entitled to "arrange whatever compensation arrangement they like for the exchange of traffic."[4] Until the FCC states otherwise, CMRS carriers retain the right to contract with CLECs for the provision of network access services.[5] Nonetheless, although the FCC has specifically declined to prohibit contractual arrangements between CLECs and CMRS carriers for the recovery of the costs of 8YY traffic—thus necessitating the conclusion that Hypercube's agreements with wireless carriers are valid and permissible from the standpoint of federal telecommunications law—DeltaCom exploits this externality not only by consuming Hypercube's services without compensating Hypercube, but also by consuming an excessive number of minutes of use over Hypercube's network. Through econometric analysis of actual Hypercube data, I find that DeltaCom consumed millions of additional minutes of use for wireless-initiated 8YY calls over the period of its refusal to pay Hypercube, beginning in December 2004 when Hypercube first began serving DeltaCom. In other words, DeltaCom's demand to use Hypercube's network for the delivery of wireless-initiated intrastate 8YY calls increased by millions of minutes after it began refusing to pay the rates pursuant to

3. *Petitions of Sprint PCS and AT&T Corp. for Declaratory Ruling Regarding CMRS Access Charges*, 17 F.C.C. Rcd. 13,192 (2002).
4. *Id.* at 13,195 ¶ 7.
5. *Id.*

Hypercube's price list. This result indicates that DeltaCom consumed millions more minutes of use for wireless-initiated intrastate 8YY calls following its refusal to pay Hypercube than it would have had DeltaCom paid the rates pursuant to Hypercube's price list.

I also explain in Part II the relevant components of the Federal Communications Commission's (FCC) current regulatory regime governing CLEC access charges. As the Florida Public Service Commission (PSC) has approved Hypercube's price list for its provision of network access to 8YY calls destined to DeltaCom's subscribers, DeltaCom has a legal obligation to pay Hypercube for its performance of services pursuant to Hypercube's price list. Consequently, Hypercube's payments to wireless carriers through contractual arrangements for the provision of wireless-initiated 8YY traffic in Florida do not violate any state or federal law.

OTHER ISSUES: THE ECONOMIC IMPLICATIONS OF DELTACOM'S NONPAYMENT

Q. What additional information and analysis does your report provide in connection to the issues set forth in this matter?

A. My report addresses the implications to network investment and consumer welfare of DeltaCom's withholding of payment for services that Hypercube has rendered to DeltaCom pursuant to its Commission-approved price list. In Part III, I examine the growth in demand for wireless access and the implication of that growth for the demand for 8YY calls. Specifically, wireless demand has overtaken wireline demand. Wireless substitution implies that a growing proportion of 8YY calls will continue to be initiated on wireless networks, which entails higher costs to CMRS carriers. Similarly, growth in online commerce and mobile broadband will increase the

number of 8YY calls originating on cellular phones. As CMRS carriers must devote more of their limited spectrum to carrying 8YY calls for which they are unable to demand compensation, network-access agreements between a CMRS carrier and a CLEC such as Hypercube serve as an increasingly valuable mechanism by which to allow the CMRS carrier to avoid the costs incurred beyond its own switch to deliver 8YY calls to IXCs.

In Part IV of my report, I explain how 8YY calls exhibit two-sided demand. I examine the economic characteristics of two-sided markets generally and the economic characteristics of the 8YY calling market specifically. In the presence of two-sided demand, economic efficiency dictates that the party with the less price-elastic demand pay a greater proportion of the sunk cost of supplying access. It is likely that 8YY subscribers have less elastic demand for 8YY calls than do end users who make 8YY calls on cell phones. Thus, allowing 8YY subscribers to pay CLECs implicitly for the costs of carrying 8YY calls by explicitly requiring DeltaCom to pay the rates pursuant to Hypercube's price list for the services provided by Hypercube will result in net consumer welfare gains. I also explain how accounting for all of the costs of supplying toll-free services is essential for preserving incentives for investment and innovation.

In Part V, I provide evidence that competitive tandem switching is efficient and promotes the ubiquity and seamlessness of the telecommunications network by providing greater network diversity and increasing consumer access. Contractual arrangements between CLECs and CMRS carriers increase incentives for investment and innovation in the core of the wireless network. Permitting IXCs to refuse to pay

for competitive tandem switching that is governed by a Commission-approved price list would dull the investment incentives of tandem switching providers, therein diminishing the long-term ubiquity and seamlessness of the network.

I also explain in Part V of my report how voluntary agreements for direct interconnection into which Hypercube has entered with IXCs constitute compelling empirical evidence of the value that competitive tandem switching adds to the network. Based on this evidence, I conclude that DeltaCom's justification for refusing to pay Hypercube—on the grounds that Hypercube does not provide a service having economic value—is without merit.

Q. Does this conclude your direct testimony?

A. Yes.

EXHIBIT____ (JGS-1): CURRICULUM VITAE

J. GREGORY SIDAK

Criterion Economics, L.L.C.
1614 20th Street, N.W.
Washington, D.C. 20009
United States of America
202–518-5121, jgsidak@criterioneconomics.com
http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=206474

EDUCATION

STANFORD UNIVERSITY, J.D., 1981; A.M. (Economics), 1981; A.B. *with honors and distinction (Economics)*, 1977. Associate Editor, *Stanford Law Review*. Myers Prize in Economics, 1977.

CURRENT EMPLOYMENT

CRITERION ECONOMICS, L.L.C., Washington, D.C.: Chairman, 2008-present. Founder, 1999-present.

TILBURG UNIVERSITY, Tilburg, The Netherlands: Ronald Coase Professor of Law and Economics, 2009-present.

JOURNAL OF COMPETITION LAW & ECONOMICS, published by the Oxford University Press, Oxford, United Kingdom: Founding editor, 2004-present.

THE COASE FOUNDATION FOR LAW & ECONOMICS, Washington, D.C.: President, 2008-present.

EMPLOYMENT HISTORY

GEORGETOWN UNIVERSITY, Washington, D.C.: Visiting Professor of Law, 2005-2007.

AMERICAN ENTERPRISE INSTITUTE FOR PUBLIC POLICY RESEARCH, Washington, D.C.: Resident Scholar and F.K. Weyerhaeuser Fellow in Law and Economics Emeritus, 2002-2005. Director, AEI Studies in Telecommunications Deregulation, 1992-1995. F.K. Weyerhaeuser Fellow in Law and Economics, 1995-2002. Resident Scholar, 1992-1995.

YALE UNIVERSITY, New Haven, Connecticut: Senior Lecturer, Yale School of Management, 1993-1999.

COVINGTON & BURLING, Washington, D.C.: Associate, 1989-1992.

FEDERAL COMMUNICATIONS COMMISSION, Washington, D.C.: Deputy General Counsel, 1987-1989.

COUNCIL OF ECONOMIC ADVISERS, *EXECUTIVE OFFICE OF THE PRESIDENT*, Washington, D.C.: Senior Counsel and Economist, 1986-1987.

THE BOSTON CONSULTING GROUP, INC., Los Angeles: Management Consultant, 1984-1986.

O'MELVENY & MYERS, Los Angeles: Associate, 1982-1984.

U.S. COURT OF APPEALS FOR THE SEVENTH CIRCUIT, Chicago: Law Clerk to Judge Richard A. Posner, 1981-1982.

CORPORATE BOARDS

NTT DOCOMO, Tokyo, Japan: Member, U.S. Advisory Board, 2002-2006.

AUTHORED BOOKS

Broadband in Europe: How Can Brussels Wire the Information Society, co-authored with Dan Maldoom, Richard Marsden, and Hal J. Singer (Springer 2005).

Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States (Cambridge University Press 1997), co-authored with Daniel F. Spulber. Chinese translation: Horizon Media Co. Ltd. forthcoming 2007.

Foreign Investment in American Telecommunications (University of Chicago Press 1997).

Protecting Competition from the Postal Monopoly (AEI Press 1996), co-authored with Daniel F. Spulber.

Transmission Pricing and Stranded Costs in the Electric Power Industry (AEI Press 1995), co-authored with William J. Baumol.

Toward Competition in Local Telephony (MIT Press & AEI Press 1994), co-authored with William J. Baumol. Korean translation: Korea Information Society Development Institute 1996.

EDITED BOOKS

Competition and Regulation in Telecommunications: Examining Germany and America (J. Gregory Sidak, Christoph Engel & Günter Knieps, editors, Kluwer Academic Press 2000).

Is the Telecommunications Act of 1996 Broken? If So, How Can We Fix It? (J. Gregory Sidak, editor, AEI Press 1999).

Governing the Postal Service (J. Gregory Sidak, editor, AEI Press 1994).

JOURNAL ARTICLES

Innovation Spillovers and the "Dirt Road" Fallacy: The Intellectual Bankruptcy of Banning Optional Transactions for Enhanced Delivery over the Internet, 6 JOURNAL OF COMPETITION LAW & ECONOMICS (forthcoming 2010), co-authored with David J. Teece.

Dynamic Competition in Antitrust Law, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 581 (2009), co-authored with David J. Teece.

Google and the Proper Antitrust Scrutiny of Orphan Books, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 411 (2009), co-authored with Jerry A. Hausman.

Rewriting the Horizontal Merger Guidelines in the Name of Dynamic Competition, 16 GEORGE MASON LAW REVIEW 885 (2009), co-authored with David J. Teece.

Patent Holdup and Oligopsonistic Collusion in Standard Setting Organizations, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 123 (2009).

Abolishing the Price Squeeze as a Theory of Antitrust Liability, 4 JOURNAL OF COMPETITION LAW & ECONOMICS 279 (2008).

Are Regulators Forward-Looking? The Market Price of Copper Versus the Regulated Price of Mandatory Access to Unbundled Local Loops in Telecommunications Networks, 61 FEDERAL COMMUNICATIONS LAW JOURNAL 199 (2008), co-authored with Jerry A. Hausman and Timothy J. Tariff.

Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro, 92 MINNESOTA LAW REVIEW 713 (2008).

Evaluating Market Power with Two-Sided Demand and Preemptive Offers to Dissipate Monopoly Rent: Lessons for High-Technology Industries from the Antitrust Division's Approval of the XM-Sirius Satellite Radio Merger, 4 JOURNAL OF COMPETITION LAW & ECONOMICS 697 (2008), co-authored with Hal J. Singer.

Should Antitrust Consent Decrees Regulate Post-Merger Pricing?, 3 JOURNAL OF COMPETITION LAW & ECONOMICS 471 (2007), co-authored with Farrell Malone.

Evaluating Market Power Using Competitive Benchmark Prices Instead of the Hirschman-Herfindahl Index, 74 ANTITRUST LAW JOURNAL 387 (2007), co-authored with Jerry A. Hausman.

Vertical Foreclosure in Video Programming Markets: Implications for Cable Operators, 6 REVIEW OF NETWORK ECONOMICS 348 (2007), co-authored with Hal J. Singer, available at http://www.rnejournal.com/index.html.

What Is the Network Neutrality Debate Really About?, 1 INTERNATIONAL JOURNAL OF COMMUNICATIONS 377 (2007).

Patent Damages and Real Options: How Judicial Characterization of Non-Infringing Alternatives Reduces Incentives to Innovate, 22 BERKELEY TECHNOLOGY LAW JOURNAL 825 (2007), co-authored with Jerry A. Hausman and Gregory K. Leonard.

Does Video Delivered Over a Telephone Network Require a Cable Franchise?, 59 FEDERAL COMMUNICATIONS LAW JOURNAL 251 (2007), co-authored with Robert W. Crandall and Hal J. Singer.

A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet, 2 JOURNAL OF COMPETITION LAW & ECONOMICS 349 (2006).

When Does an Optional Tariff Not Lead to a Pareto Improvement? The Ambiguous Effects of Self-Selecting Nonlinear Pricing When Demand Is Interdependent or Firms Do Not Maximize Profit, 2 JOURNAL OF COMPETITION LAW & ECONOMICS 285 (2006), co-authored with John C. Panzar.

The Quasi War Cases—and Their Relevance to Whether "Letters of Marque and Reprisal" Constrain Presidential War Powers, 27 HARVARD JOURNAL OF LAW & PUBLIC POLICY 465 (2005).

The Future of the Postal Monopoly: American and European Perspectives After the Presidential Commission and Flamingo Industries, 28 WORLD COMPETITION 163 (2005), co-authored with Damien Geradin.
Did Mandatory Unbundling Achieve Its Purpose? Empirical Evidence from Five Countries, 1 JOURNAL OF COMPETITION LAW & ECONOMICS 173 (2005), co-authored with Jerry A. Hausman.

Überregulation without Economics: The World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services, 57 FEDERAL COMMUNICATIONS LAW JOURNAL 1 (2004), co-authored with Hal J. Singer.

Do States Tax Wireless Services Inefficiently? Evidence on the Price Elasticity of Demand, 24 VIRGINIA TAX REVIEW 249 (2004), co-authored with Allan T. Ingraham.

Why Do the Poor and the Less-Educated Pay More for Long-Distance Calls?, CONTRIBUTIONS IN ECONOMIC AND POLICY RESEARCH, vol. 3, issue 1, article 3 (2004), co-authored with Jerry A. Hausman, available at http://www.bepress.com/bejeap/contributions/vol3/iss1/art3/.

Should Regulators Set Rates to Terminate Calls on Mobile Networks?, 21 YALE JOURNAL ON REGULATION 261 (2004), co-authored with Robert W. Crandall.

Competition Law for State-Owned Enterprises, 71 ANTITRUST LAW JOURNAL 479 (2003), co-authored with David E. M. Sappington.

An Economic Theory of Censorship, 11 SUPREME COURT ECONOMIC REVIEW 81 (2003).

Remedies and the Institutional Design of Regulation in Network Industries, 2003 MICHIGAN STATE DCL LAW REVIEW 741 (2003).

Interim Pricing of Local Loop Unbundling in Ireland: Epilogue, 4 JOURNAL OF NETWORK INDUSTRIES 119 (2003), co-authored with Hal J. Singer.

The Failure of Good Intentions: The WorldCom Fraud and the Collapse of American Telecommunications After Deregulation, 20 YALE JOURNAL ON REGULATION 207 (2003).

Mandatory Unbundling, UNE-P, and the Cost of Equity: Does TELRIC Pricing Increase Risk for Incumbent Local Exchange Carriers?, 20 YALE JOURNAL ON REGULATION 389 (2003), co-authored with Allan T. Ingraham.

Incentives for Anticompetitive Behavior by Public Enterprises, 22 REVIEW OF INDUSTRIAL ORGANIZATION 183 (2003), co-authored with David E. M. Sappington.

The Price of Experience: The Constitution After September 11, 2001, 19 CONSTITUTIONAL COMMENTARY 37 (2002).

Does Bell Company Entry into Long-Distance Telecommunications Benefit Consumers?, 70 ANTITRUST LAW JOURNAL 463 (2002), co-authored with Jerry A. Hausman and Gregory K. Leonard.

The Empirical Case Against Asymmetric Regulation of Broadband Internet Access, 17 BERKELEY TECHNOLOGY LAW JOURNAL 953 (2002), co-authored with Robert W. Crandall and Hal J. Singer.

The Pig in the Python: Is Lumpy Capacity Investment Used and Useful?, 23 ENERGY LAW JOURNAL 383 (2002), co-authored with William J. Baumol.

Exporting Telecommunications Regulation: The U.S.-Japan Negotiations on Interconnection Pricing, 43 HARVARD INTERNATIONAL LAW JOURNAL 317 (2002), co-authored with Jeffrey H. Rohlfs.

Is Structural Separation of Incumbent Local Exchange Carriers Necessary for Competition?, 19 YALE JOURNAL ON REGULATION 335 (2002), co-authored with Robert W. Crandall.

How Can Regulators Set Nonarbitrary Interim Rates? The Case of Local Loop Unbundling in Ireland, 3 JOURNAL OF NETWORK INDUSTRIES 273 (2002), co-authored with Hal J. Singer.

The Legislator-in-Chief, 44 WILLIAM & MARY LAW REVIEW 1 (2002), co-authored with Vasan Kesavan.

Capital Subsidies, Profit Maximization, and Acquisitions by Partially Privatized Telecommunications Carriers, 26 TELECOMMUNICATIONS POLICY 287 (2002).

Why Did the U.S. Telecommunications Industry Collapse?, 28 INFOCOM REVIEW 17 (2002) (in Japanese).

The Efficient Allocation of Proceeds from a Utility's Sale of Assets, 22 ENERGY LAW JOURNAL 233 (2001), co-authored with Paul W. MacAvoy.

Acquisitions by Partially Privatized Firms: The Case of Deutsche Telekom and VoiceStream, 54 FEDERAL COMMUNICATIONS LAW JOURNAL 1 (2001).

Antitrust Divestiture in Network Industries, 68 UNIVERSITY OF CHICAGO LAW REVIEW 1 (2001), co-authored with Howard A. Shelanski.

Mr. Justice Nemo's Social Statics, 79 TEXAS LAW REVIEW 737 (2001).

An Antitrust Rule for Software Integration, 18 YALE JOURNAL ON REGULATION 1 (2001).

Cable Modems and DSL: Broadband Internet Access for Residential Customers, 91 AMERICAN ECONOMIC ASSOCIATION PAPERS AND PROCEEDINGS 302 (2001), co-authored with Jerry A. Hausman and Hal J. Singer.

True God of the Next Justice, 18 CONSTITUTIONAL COMMENTARY 9 (2001).

Residential Demand for Broadband Telecommunications and Consumer Access to Unaffiliated Internet Content Providers, 18 YALE JOURNAL ON REGULATION 129 (2001), co-authored with Jerry A. Hausman and Hal J. Singer.

Are Public Enterprises the Only Credible Predators?, 67 UNIVERSITY OF CHICAGO LAW REVIEW 271 (2000), co-authored with David E. M. Sappington.

Innovation, Investment, and Unbundling, 17 YALE JOURNAL ON REGULATION 1 (2000), co-authored with Thomas M. Jorde and David J. Teece.

A Consumer-Welfare Approach to Mandatory Unbundling of Telecommunications Networks, 109 YALE LAW JOURNAL 417 (1999), co-authored with Jerry A. Hausman.

What Is Wrong with American Telecommunications?, MULTIMEDIA UND RECHT, Mar. 1999, at 15, co-authored with Paul W. MacAvoy, reprinted in COMPETITION AND REGULATION IN TELECOMMUNICATIONS: EXAMINING GERMANY AND AMERICA (J. Gregory Sidak, Christoph Engel & Günter Knieps, editors, Kluwer Academic Press 2000).

A General Framework for Competitive Analysis in Wireless Telecommunications, 50 HASTINGS LAW JOURNAL 1639 (1999), co-authored with David J. Teece and Hal J. Singer.

Essential Facilities, 51 STANFORD LAW REVIEW 1185 (1999), co-authored with Abbott B. Lipsky, Jr. Spanish translation republished as *Facilidades esenciales*, 27 IUS ET VERITAS 126 (2004).

The Petty Larceny of the Police Power, 86 CALIFORNIA LAW REVIEW 655 (1998) (review essay).

Deregulation and Managed Competition in Network Industries, 15 YALE JOURNAL ON REGULATION 117 (1998), co-authored with Daniel F. Spulber.

Cyberjam: The Law and Economics of Internet Congestion of the Telephone Network, 21 HARVARD JOURNAL OF LAW & PUBLIC POLICY 337 (1998), co-authored with Daniel F. Spulber.

Network Access Pricing and Deregulation, 6 INDUSTRIAL AND CORPORATE CHANGE 757 (1997), co-authored with Daniel F. Spulber.

Givings, Takings, and the Fallacy of Forward-Looking Costs, 72 NEW YORK UNIVERSITY LAW REVIEW 1068 (1997), co-authored with 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), co-authored with Daniel F. Spulber.

Monopoly and the Mandate of Canada Post, 14 YALE JOURNAL ON REGULATION 1 (1997), co-authored with Daniel F. Spulber.

Deregulatory Takings and Breach of the Regulatory Contract, 71 NEW YORK UNIVERSITY LAW REVIEW 851 (1996), co-authored with Daniel F. Spulber.

Pricing of Services Provided to Competitors by the Regulated Firm, 3 HUME PAPERS ON PUBLIC POLICY, No. 3, at 15 (1995), co-authored with William J. Baumol.

Stranded Costs, 18 HARVARD JOURNAL OF LAW & PUBLIC POLICY 835 (1995), co-authored with William J. Baumol.

The Line-Item Veto Amendment, 80 CORNELL LAW REVIEW 1498 (1995).

Competition and Regulatory Policies for Interactive Broadband Networks, 68 SOUTHERN CALIFORNIA LAW REVIEW 1203 (1995), co-authored with Robert W. Crandall.

The Pricing of Inputs Sold to Competitors: Rejoinder and Epilogue, 12 YALE JOURNAL ON REGULATION 177 (1995), co-authored with William J. Baumol.

The Pricing of Inputs Sold to Competitors, 11 YALE JOURNAL ON REGULATION 171 (1994), co-authored with William J. Baumol.

Telecommunications in Jericho, 81 CALIFORNIA LAW REVIEW 1209 (1993) (review essay).

War, Liberty, and Enemy Aliens, 67 NEW YORK UNIVERSITY LAW REVIEW 1402 (1992).

Why Did President Bush Repudiate the "Inherent" Line-Item Veto?, 9 JOURNAL OF LAW & POLITICS 39 (1992), co-authored with Thomas A. Smith.

The Inverse Coase Theorem and Declarations of War, 41 DUKE LAW JOURNAL 325 (1991).

To Declare War, 41 DUKE LAW JOURNAL 27 (1991).

Takeover Premiums, Appraisal Rights, and the Price Elasticity of a Firm's Publicly Traded Stock, 25 GEORGIA LAW REVIEW 783 (1991), co-authored with Susan E. Woodward.

Corporate Takeovers, the Commerce Clause, and the Efficient Anonymity of Shareholders, 84 NORTHWESTERN UNIVERSITY LAW REVIEW 1092 (1990), co-authored with Susan E. Woodward.

Four Faces of the Item Veto: A Reply to Tribe and Kurland, 84 NORTHWESTERN UNIVERSITY LAW REVIEW 437 (1990), co-authored with Thomas A. Smith.

The President's Power of the Purse, 1989 DUKE LAW JOURNAL 1162.

The Recommendation Clause, 77 GEORGETOWN LAW JOURNAL 2079 (1989).

The "New Payola" and the American Record Industry: Transactions Costs and Precautionary Ignorance in Contracts for Illicit Services, 10 HARVARD JOURNAL OF LAW & PUBLIC POLICY 521 (1987), co-authored with David E. Kronemyer.

Debunking Predatory Innovation, 83 COLUMBIA LAW REVIEW 1121 (1983).

A Framework for Administering the 1916 Antidumping Act: Lessons from Antitrust Economics, 18 STANFORD JOURNAL OF INTERNATIONAL LAW 377 (1982).

Antitrust Preliminary Injunctions in Hostile Tender Offers, 30 KANSAS LAW REVIEW 491 (1982).

The Deterrent Effect of Antitrust Enforcement, 89 JOURNAL OF POLITICAL ECONOMY 429 (1981), co-authored with Michael K. Block and Frederick C. Nold.

Rethinking Antitrust Damages, 33 STANFORD LAW REVIEW 329 (1981) (student note).

The Cost of Antitrust Deterrence: Why Not Hang a Price Fixer Now and Then?, 68 GEORGETOWN LAW JOURNAL 1131 (1980), co-authored with Michael K. Block.

CHAPTERS IN BOOKS

Telecommunications Regulation: Current Approaches with the End in Sight, in ECONOMIC REGULATION AND ITS REFORM: WHAT HAVE WE LEARNED? (Nancy L. Rose, ed., National Bureau of Economic Research & University of Chicago Press, forthcoming 2008), co-authored with Jerry A. Hausman.

An Antitrust Analysis of the World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services, in HANDBOOK OF TRANS-ATLANTIC ANTITRUST 679 (Philip Marsden ed. Edward Elgar 2006), co-authored with Hal J. Singer.

European and American Approaches to Antitrust Remedies and the Institutional Design of Regulation in Telecommunications, in THE HANDBOOK OF TELECOMMUNICATIONS ECONOMICS, volume 2 (Martin Cave, Sumit Kumar Majumdar & Ingo Vogelsang, eds. North-Holland 2006), co-authored with Damien Geradin.

Remedies in Network Industries—A View from the United States, in REMEDIES IN NETWORK INDUSTRIES: EC COMPETITION LAW VS. SECTOR-SPECIFIC REGULATION 255 (Damien Geradin ed., Intersentia 2004).

Competition Law for State-Owned Enterprises, in COMPETING WITH THE GOVERNMENT: ANTICOMPETITIVE BEHAVIOR AND PUBLIC ENTERPRISES (Rick Geddes ed., Hoover Institution Press 2004), co-authored with David E. M. Sappington.

The Failure of Good Intentions: The Collapse of American Telecommunications After Six Years of Deregulation, in SUCCESS AND FAILURES IN REGULATING AND DEREGULATING UTILITIES: EVIDENCE FROM THE UK, EUROPE AND THE USA 1 (Colin Robinson ed., Edward Elgar 2004).

What Is Wrong with American Telecommunications?, in COMPETITION AND REGULATION IN TELECOMMUNICATIONS: EXAMINING GERMANY AND AMERICA (J. Gregory Sidak, Christoph Engel & Günter Knieps, editors, Kluwer Academic Press 2000), co-authored with Paul W. MacAvoy.

The Dismal Science of Law, 1992 PUBLIC INTEREST LAW REVIEW 121 (book review of DANIEL A. FARBER & PHILIP P. FRICKEY, LAW AND PUBLIC CHOICE: A CRITICAL INTRODUCTION (1991)).

The Economic Perspective on Broadcasting Regulation, in THE NATIONAL ECONOMISTS CLUB READER 15 (Richard T. Gill ed. 1991).

Two Factors That Reduce Record Company Profitability, 1987 ENTERTAINMENT, PUBLISHING AND THE ARTS HANDBOOK 371, co-authored with David E. Kronemyer.

Risk and Responsibility, in 1987 ECONOMIC REPORT OF THE PRESIDENT 179, co-authored with Stephen J. DeCanio, Arlene S. Holen, and Susan E. Woodward.

The Structure and Performance of the U.S. Record Industry, 1986 ENTERTAINMENT, PUBLISHING AND THE ARTS HANDBOOK 263, co-authored with David E. Kronemyer.

NEWSPAPER, MAGAZINE, AND WEBSITE ARTICLES

Foxes in the Henhouse: FCC Regulation through Merger Review, MILKEN INSTITUTE REVIEW, vol. 10, no. 1, Jan. 2008, at 46, co-authored with Hal J. Singer.

Trusting the Antitrust Laws: Sirius and XM Are No Different, NATIONAL REVIEW ONLINE, Oct. 3, 2007, http://article.nationalreview.com/?q=Zjk5NTJjNjc1MjE1ZjUwZjBiMDQ0YWNjNjRlYjFhNTk=.

Misunderstanding the XM/Sirius Merger, WASHINGTON TIMES, Aug. 24, 2007, co-authored with Hal J. Singer.

Network Neutrality: Should Congress Require Broadband Providers to Treat Similar Types of Internet Traffic Equally?, CONGRESSIONAL DIGEST, vol. 86, no. 2, at 57 (Feb. 2007).

The F.C.C.'s Duty, NEW YORK TIMES, Oct. 8, 2002, at A31.

Should Consumers Pay the "Stranded Costs" of Utility Companies?, INSIGHT, Nov. 9, 1998, at 24.

Voters Should Back State's Besieged Law on Retail Competition, BOSTON SUNDAY HERALD, May 24, 1998, at 25.

Avoiding America's Regulatory Mistakes in Hong Kong's Telecoms Market, HONG KONG ECONOMIC JOURNAL, Aug. 29, 1997 (in Cantonese).

Telecommunications: America's Investment Xenophobia, JOURNAL OF COMMERCE, Aug. 22 1997, at 8A

The line-item veto: two views; Next stop: Supreme Court, JOURNAL OF COMMERCE, Aug. 20, 1997, at 9A.

Antitrust and the Federal Software Commission, JOBS & CAPITAL, vol. 6, at 18 (winter 1997).

Stranded Cost Recovery Benefits Consumers, REGULATION, 1996 no. 2, at 12 (1996), co-authored with William J. Baumol.

Let Utilities Recover Stranded Costs, WALL STREET JOURNAL, June 17, 1996, at A15, co-authored with William J. Baumol.

Competition and the Postal Service, THE AMERICAN ENTERPRISE, vol. 7, no. 3, at 74 (May/June 1996).

When Competition Amounts to Taking, NATIONAL LAW JOURNAL, Apr. 1, 1996, at A19.

Post Office Monopoly: Unfair Market Practice, NATIONAL LAW JOURNAL, Oct. 23, 1995, at A23.

The Unregulated Infobahn, JOBS & CAPITAL, vol. 4, at 28 (summer 1995), co-authored with Robert W. Crandall, reprinted in Australia in POLICY, vol. 11, no. 2, at 9 (winter 1995).

Stranded Cost Recovery: Fair and Reasonable, PUBLIC UTILITIES FORTNIGHTLY, May 15, 1995, at 20, co-authored with William J. Baumol.

Telecommunications: Unleashing the Industry, THE AMERICAN ENTERPRISE, vol. 5, no. 5, at 42 (Sept./Oct. 1994).

Don't Stifle Global Merger Mania, WALL STREET JOURNAL, July 6, 1994, at A18.

Telecommunications: The Big Picture, ROLL CALL, June 27, 1994, at 4 (supp.).

Broadcast News, THE AMERICAN ENTERPRISE, vol. 3, no. 2, at 70 (Mar./Apr. 1992).

The Veto Power: How Free Is the President's Hand?, THE AMERICAN ENTERPRISE 58, vol. 2, no. 2 (Mar./Apr. 1991), co-authored with Thomas A. Smith.

Spending Riders Would Unhorse the Executive, WALL STREET JOURNAL, November 2, 1989, at A18, col. 3.

How Congress Erodes the Power of the Presidency: The Appropriations Muzzle, WALL STREET JOURNAL, Feb. 6, 1989, at A8, col. 3.

Marketplace Solution to Midair Collisions, WALL STREET JOURNAL, Mar. 2, 1987, at 20, col. 3.

MEDIA INTERVIEWS

Microsoft-Yahoo Merger Faces Antitrust Hurdles, ALL THINGS CONSIDERED, NATIONAL PUBLIC RADIO, Feb. 2, 2008, available at http://www.npr.org/templates/story/story.php?storyId=18636379 (interviewed by Andrea Seabrook).

MISCELLANEOUS PUBLICATIONS

The Economics of Mail Delivery: A Comment, in GOVERNING THE POSTAL SERVICE 14 (J. Gregory Sidak, ed., AEI Press 1994).

The Appropriations Power and the Necessary and Proper Clause, 68 WASHINGTON UNIVERSITY LAW QUARTERLY 651 (1990) (questioner for symposium panel discussion).

TESTIMONY, REPORTS, AND BRIEFS AMICUS CURIAE

Innovation Spillovers and the "Dirt Road" Fallacy: The Intellectual Bankruptcy of Banning Optional Transactions for Enhanced Delivery over the Internet, co-authored with David J. Teece, *appended to* Reply Comments of AT&T Inc., Federal Communications Commission, In the Matter of Preserving the Open Internet Broadband Industry Practices, GN Dkt. No. 09-191, WC Dkt. No. 07-52 (filed Apr. 26, 2010).

Declaration of J. Gregory Sidak on behalf of Hypercube Telecom, LLC, in Hypercube Telecom, LLC v. Level 3 Communications, LLC, Public Utilities Commission of California, Case 09-05-009 (filed Jan. 11, 2010).

Is Regulation of Access and Interconnection Necessary for Bermuda's Telecommunications Markets to Achieve Effectively Competitive Outcomes?, Response to Access and Interconnection in Bermuda Consultation Paper (6 Oct. 2009), Ministry of Energy, Telecommunications, and E-Commerce, Government of Bermuda (filed Nov. 17, 2009), on behalf of The Bermuda Telephone Company Limited.

Comments of J. Gregory Sidak and David J. Teece, Horizontal Merger Guidelines Review Project, Federal Trade Commission & U.S. Department of Justice, Project No. P092900 (filed Nov. 9, 2009).

Letter of J. Gregory Sidak to Jonathan Daniels, Esq., Vice President, Regulatory Law, Bell Canada (Mar. 11, 2009), *attached to* Petition to the Governor in Council to Vary Telecom Decision CRTC 2008-117, Cybersurf Corp.'s Application Related to Matching Service Speed Requirements for Wholesale Internet Services, and to Rescind Telecom Order CRTC 2009-111, Cybersurf's Application Related to the Implementation of Telecom Decision 2008-117 Regarding the Matching Speed Requirement by Bell Aliant and Bell Canada (filed Mar. 11, 2009) (on behalf of Bell Canada).

Rebuttal Declaration of J. Gregory Sidak on behalf of Nichia Corporation, Panasonic Communications Co., Ltd., Panasonic Corporation, La Cie, Ltd., Hitachi Ltd., and Hitachi America, Ltd. in In the Matter of Certain Short Wavelength Semiconductor Lasers and Products Containing the Same, U.S. International Trade Commission, Investigation No. 337-TA-627 (filed Dec. 12, 2008).

Brief of *Amici Curiae* Professors and Scholars in Law and Economics in Support of the Petitioners, Pacific Bell Telephone Co. v. linkLine Communications, Inc., Supreme Court of the United States, No. 07-512 (filed Sept. 4, 2008) (brief on behalf of William J. Baumol, Robert H. Bork, Robert W. Crandall, George Daly, Harold Demsetz, Jeffrey A. Eisenach, Kenneth G. Elzinga, Richard A. Epstein, Gerald Faulhaber, Franklin M. Fisher, Charles J. Goetz, Robert Hahn, Jerry A. Hausman, Keith N. Hylton, Thomas M. Jorde, Robert E. Litan, Paul W. MacAvoy, Sam Peltzman, J. Gregory Sidak, Pablo T. Spiller, and Daniel F. Spulber), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1264103 (merits brief).

Declaration of J. Gregory Sidak on behalf of ATCO Utilities in In the Matter of Review of Rate Related Implications of Utility Asset Dispositions Following the Supreme Court's Calgary Stores Block Decision (The Utility Asset Disposition Rate Review Proceeding), Alberta Utilities Commission, Application No. 1566373, Proceeding ID. No. 20 (filed Aug. 25, 2008).

The Static and Dynamic Inefficiency of Abandoning Unrestricted Auctions for Spectrum: A Critique of Professor Wilkie's Analysis of the M2Z Proposal (July 2008), co-authored with Robert W. Hahn, Allan T. Ingraham & Hal J. Singer (commissioned by CTIA).

Fourth Supplemental Declaration of J. Gregory Sidak on behalf of the Consumer Coalition for Competition in Satellite Radio Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc., Federal Communications Commission, MB Dkt. 07-57 (Jan. 23, 2008).

Brief of *Amici Curiae* Professors and Scholars in Law and Economics in Support of the Petitioners, Pacific Bell Telephone Co. v. linkLine Communications, Inc., Supreme Court of the United States, No. 07-512 (filed Nov. 16, 2007) (brief on behalf of William J. Baumol, Robert H. Bork, Robert W. Crandall, George Daly, Harold Demsetz, Jeffrey A. Eisenach, Kenneth G. Elzinga, Gerald Faulhaber, Franklin M. Fisher, Charles J. Goetz, Robert Hahn, Jerry A. Hausman, Thomas M. Jorde, Robert E. Litan, Paul W. MacAvoy, J. Gregory Sidak, Pablo T. Spiller, and Daniel F. Spulber), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1030990.

Third Supplemental Declaration of J. Gregory Sidak on behalf of the Consumer Coalition for Competition in Satellite Radio Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc., Federal Communications Commission, MB Dkt. 07-57 (Oct. 1, 2007).

Declaration of J. Gregory Sidak on behalf of United Parcel Service, United States Postal Service Study, Project No. P071200, Federal Trade Commission (filed Aug. 6, 2007).

Second Supplemental Declaration of J. Gregory Sidak on behalf of the Consumer Coalition for Competition in Satellite Radio Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc., Federal Communications Commission, MB Dkt. 07-57 (July 24, 2007).

Supplemental Declaration of J. Gregory Sidak on behalf of the Consumer Coalition for Competition in Satellite Radio Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc., Federal Communications Commission, MB Dkt. 07-57 (July 9, 2007).

U.S. Federal Trade Commission & U.S. Department of Justice, Sherman Act Section 2 Joint Hearing Understanding Single-Firm Behavior: Conduct as Related to Competition (May 8, 2007) (Deborah Platt Majoras & Thomas Barnett, moderators) (panel discussion among Susan Creighton, Jeffrey Eisenach, Timothy Muris, Robert Pitofsky, Douglas Melamed, James Rill, Charles F. (Rick) Rule, and J. Gregory Sidak), available at http://www.ftc.gov/os/sectiontwohearings/docs/070508trans.pdf.

Direct and Cross Examination Testimony of J. Gregory Sidak, *RLH Industries, Inc. v. SBC Communications, Inc.*, Case No. 02 CC 16869, Superior Court of California for the County of Orange, California (Mar. 19, 2007) (expert testimony for SBC Communications in antitrust litigation).

Expert Declaration of J. Gregory Sidak on behalf of the Consumer Coalition for Competition in Satellite Radio Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc., Federal Communications Commission, MB Dkt. 07-57 (Mar. 16, 2007).

The Economic Effect of Granting the Alberta Energy and Utilities Board Authority to Direct the Disposition of Proceeds When a Public Utility Divests Assets (Mar. 2007) (prepared for ATCO Gas), co-authored with Paul W. MacAvoy.

Cross Examination Testimony of J. Gregory Sidak on behalf of the Newspaper Association of America, Postal Rate Commission, Postal Rate and Fee Change, 2006, Dkt. No. R2006-1 (Nov. 29, 2006).

Rebuttal Testimony of J. Gregory Sidak on behalf of the Newspaper Association of America, Postal Rate Commission, Postal Rate and Fee Change, 2006, Dkt. No. R2006-1 (filed Nov. 20, 2006).

Direct Testimony of J. Gregory Sidak on behalf of the Newspaper Association of America, Postal Rate Commission, Postal Rate and Fee Change, 2006, Dkt. No. R2006-1 (filed Sept. 5, 2006).

VIDEO GAMES: SERIOUS BUSINESS FOR AMERICA'S ECONOMY, co-authored with Robert W. Crandall (2006) (commissioned by the Entertainment Software Association).

Testimony of J. Gregory Sidak on Net Neutrality, Committee on Commerce, Science, and Transportation, United States Senate, Feb. 7, 2006.

Cross Examination Testimony of J. Gregory Sidak on behalf of Public Service Electric and Gas Company on the Appropriation of Non-Regulated, Generation-Related Merger Synergies and Asset Transfer Proceeds to Fund Rate Reductions, In the Matter of the Joint Petition of Public Service Electric and Gas Company and Exelon Corporation for Approval of a Change in Control of Public Service Electric and Gas Company, and Related Authorizations, New Jersey Board of Public Utilities, BPU Dkt. No. EM05020106, OAL Dkt. No. PUC-1874-05, JP-36 (Jan. 11, 2006).

Rebuttal Testimony of J. Gregory Sidak on behalf of Public Service Electric and Gas Company on the Appropriation of Non-Regulated, Generation-Related Merger Synergies and Asset Transfer Proceeds to Fund Rate Reductions, In the Matter of the Joint Petition of Public Service Electric and Gas Company and Exelon Corporation for Approval of a Change in Control of Public Service Electric and Gas Company, and Related Authorizations, New Jersey Board of Public Utilities, BPU Dkt. No. EM05020106, OAL Dkt. No. PUC-1874-05, JP-36 (filed Dec. 12, 2005).

Cross Examination Testimony of J. Gregory Sidak on behalf of Videsh Sanchar Nigam Limited, In the Matter of Flag Telecom Group Limited, Claimant, Videsh Sanchar Nigam Limited, Respondent, Case No. 13 638/JNK/EBS, International Court of Arbitration, International Chamber of Commerce, The Hague (Nov. 18, 2005).

Reply Declaration of J. Gregory Sidak and Hal J. Singer on behalf of TCR Sports Broadcasting Holding, L.L.P., In the Matter of Applications for Consent to the Assignment and/or Transfer of Control of Licenses Adelphia Communications Corporation, (and subsidiaries, debtors-in-possession), Assignors, to Time Warner Cable Inc. (subsidiaries), Assignees; Adelphia Communications Corporation, (and subsidiaries, debtors-in-possession), Assignors and Transferors, to Comcast Corporation (subsidiaries), Assignees and Transferees; Comcast Corporation, Transferor, to Time Warner Inc., Transferee; Time Warner Inc., Transferor to Comcast Corporation, Transferee, Federal Communications Commission, MB Dkt. No. 05-192 (filed Nov. 14, 2005) (filed on behalf of the holding company for the Baltimore Orioles baseball team).

Expert Report of J. Gregory Sidak on behalf of eircom P.L.C., in Market Requirements Document: Local Loop Unbundling: High Level Statement of Requirements Document, ComReg: 05/04, Commission for Communications Regulation, Republic of Ireland (filed Oct. 24, 2005).

Declaration of J. Gregory Sidak and Hal J. Singer on behalf of the Power Mobility Coalition in *Power Mobility Coalition v. Leavitt*, Case No. 1:05CV02027 (filed D.D.C. Oct. 13, 2005) (in support of plaintiff's motion for preliminary injunction concerning proposed changes in Medicare rules concerning patient reimbursement for power mobility devices).

Expert Report of J. Gregory Sidak on behalf of Telstra Corporation Ltd., In the Matter of Assessment of Telstra's Unconditioned Local Loop Service and Line Sharing Service Monthly Charge Undertakings, Australian Competition and Consumer Commission (filed Sept. 23, 2005).

Expert Report of J. Gregory Sidak on behalf of Videsh Sanchar Nigam Limited, In the Matter of Flag Telecom Group Limited, Claimant, Videsh Sanchar Nigam Limited, Respondent, Case No. 13 638/JNK/EBS, International Court of Arbitration, International Chamber of Commerce, The Hague (filed Sept. 16, 2005).

Supplemental Testimony of J. Gregory Sidak on behalf of PECO Energy Company, Joint Application of PECO Energy Company and Public Service Electric and Gas Company for Approval of the Merger of Public Service Enterprise Group Incorporated with and into Exelon Corporation, Pennsylvania Public Utility Commission, Dkt. No. A-110550F0160 (filed Aug. 26, 2005).

Rebuttal Testimony of J. Gregory Sidak on behalf of PECO Energy Company, Concerning the Appropriation of Non-Regulated, Generation-Related Merger Synergies and Asset Sale Proceeds to Fund Rate Reductions by PECO

Energy Company, Joint Application of PECO Energy Company and Public Service Electric and Gas Company for Approval of the Merger of Public Service Enterprise Group Incorporated with and into Exelon Corporation, Pennsylvania Public Utility Commission, Dkt. No. A-110550F0160 (filed July 29, 2005).

Declaration of J. Gregory Sidak and Hal J. Singer on behalf of TCR Sports Broadcasting Holding, L.L.P., In the Matter of Applications for Consent to the Assignment and/or Transfer of Control of Licenses Adelphia Communications Corporation, (and subsidiaries, debtors-in-possession), Assignors, to Time Warner Cable Inc. (subsidiaries), Assignees; Adelphia Communications Corporation, (and subsidiaries, debtors-in-possession), Assignors and Transferors, to Comcast Corporation (subsidiaries), Assignees and Transferees; Comcast Corporation, Transferor, to Time Warner Inc., Transferee; Time Warner Inc., Transferor to Comcast Corporation, Transferee, Federal Communications Commission, MB Dkt. No. 05-192 (filed July 21, 2005) (filed on behalf of the holding company for the Baltimore Orioles baseball team).

Deposition of J. Gregory Sidak, *RLH Industries, Inc. v. SBC Communications, Inc.*, Case No. 02 CC 16869, Superior Court of California for the County of Orange, California (Sept. 2, 2004) (expert testimony for SBC Communications in antitrust litigation).

A Critical Review of Europe Economics' Proposed Model for Estimating Operating Costs for a Hypothetically Efficient Irish Telecommunications Carrier (prepared for eircom P.L.C. for submission to the Commission for Communications Regulation, Republic of Ireland, Mar. 2004), co-authored with Jerry A. Hausman.

Competition in Broadband Provision and Its Implications for Regulatory Policy (prepared on behalf of the Brussels Round Table (Alcatel, BT, Deutsche Telekom, Ericsson, France Telecom, Siemens, Telefónica de España, and Telecom Italia) for submission to the European Commission, Oct. 15, 2003), co-authored with Dan Maldoom, Richard Marsden, and Hal J. Singer.

Expert Report of J. Gregory Sidak, Arbitration Between Levicom International Holdings BV, Levicom Investments Curaçao NV, Claimants, and Tele2 Sverige AB, Tele2 AB, Respondents, Arbitration No: 2392, London Court of International Arbitration (filed July 25, 2003).

Declaration of J. Gregory Sidak on behalf of the National Association of Broadcasters, Application of General Motors Corporation, Hughes Electronics Corporation, Transferors, and The News Corporation Limited, Transferee, For Authority to Transfer Control, Federal Communications Commission, MB Dkt. No. 03-124 (filed June 20, 2003).

Is State Taxation of the Wireless Industry Counterproductive? (prepared for Verizon Wireless Apr. 2, 2003).

Improving the U.S. Postal Service as a Public Service Government Agency (prepared for the Newspaper Association of America for submission to the Presidential Commission on the United States Postal Service, Apr. 2003).

An Economic Assessment of the Industry Advisory Group's Final Report to the Commission for Communications Regulation on Interim Pricing for Local Loop Unbundling in Ireland (prepared for eircom P.L.C. for submission to the Commission for Communications Regulation, Republic of Ireland, Feb. 14, 2003).

Declaration of J. Gregory Sidak on behalf of Qwest Corporation, In the Matter of the Complaint of the Minnesota Department of Commerce Against Qwest Corporation Regarding Unfiled Agreements, Minnesota Public Utilities Commission, Dkt. No. P-421/C-02-197 (filed Nov. 8, 2002).

Telecommunications and Trade Promotion Authority: Meaningful Market Access Goals for Telecommunications Services in International Trade Agreements: Hearing before the Subcommittee on Commerce, Trade, and Consumer Protection of the Committee on Energy and Commerce, U.S. House of Representatives, 107th Cong., 2d Sess. (Oct. 9, 2002).

The Economic Benefits of Permitting Winning Bidders to Opt Out of Auction 35 (prepared for Verizon Communications, Aug. 26, 2002).

Letter Concerning Spectrum Auction 35 to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Peter C. Cramton, Robert W. Crandall, Robert W. Hahn, Robert G. Harris, Jerry A. Hausman, Thomas W. Hazlett, Douglas G. Lichtman, Paul W. MacAvoy, Paul R. Milgrom, Richard Schmalensee, J. Gregory

Sidak, Hal J. Singer, Vernon L. Smith, William Taylor, and David J. Teece (Aug. 16, 2002).

Reply Declaration of J. Gregory Sidak on behalf of the National Association of Broadcasters, Application of EchoStar Communications Corporation, General Motors Corporation, Hughes Electronics Corporation, Transferors, and EchoStar Communications Corporation, Transferee, For Authority to Transfer Control, Federal Communications Commission, CS Dkt. No. 01-348 (filed Apr. 24, 2002).

Declaration of J. Gregory Sidak on behalf of the National Association of Broadcasters, Application of EchoStar Communications Corporation, General Motors Corporation, Hughes Electronics Corporation, Transferors, and EchoStar Communications Corporation, Transferee, For Authority to Transfer Control, Federal Communications Commission, CS Dkt. No. 01-348 (filed Feb. 4, 2002).

Replying Affidavit of J. Gregory Sidak, *eircom P.L.C. v. Director of Telecommunications Regulation*, No. 2001 No. 539 JR, High Court of the Republic of Ireland (filed on behalf of *eircom plc*, Dec. 12, 2001).

Declaration of Robert W. Crandall and J. Gregory Sidak on behalf of SBC Communications Inc., In the Matter of SBC Petition for Expedited Ruling that It Is Non-Dominant in Its Provision of Advanced Services and for Forbearance from Dominant Carrier Regulation of Those Services, Federal Communications Commission (filed Oct. 1, 2001).

Declaration of J. Gregory Sidak and Hal J. Singer on behalf of The Walt Disney Company, *et al.*, In the Matter of Nondiscrimination in the Distribution of Interactive Television Services over Cable, Notice of Inquiry, Federal Communications Commission, CS Dkt. No. 01-7 (filed May 11, 2001).

Expert Report of J. Gregory Sidak, Arista Records, Inc. *v.* MP3Board, Inc., No. 00 Civ. 4660 (SAS) (S.D.N.Y. filed Mar. 28, 2001) (report on behalf of various record companies in copyright infringement litigation).

Declaration of J. Gregory Sidak on behalf of Deutsche Telekom AG, In the Matter of VoiceStream Wireless Corporation and Powertel, Inc., Transferors, and Deutsche Telekom AG, Transferee, Federal Communications Commission, IB Dkt. No. 00-187 (filed Jan. 8, 2001).

Foreign Government Ownership of American Telecommunications Companies, Hearings before the Subcommittee on Telecommunications, Trade, and Consumer Protection of the Committee on Commerce, U.S. House of Representatives, 106th Cong., 2d Sess. 101 (Sept. 7, 2000) (testimony on behalf of Deutsche Telekom AG).

Declaration of J. Gregory Sidak on behalf of U S WEST Communications, Inc., *U S WEST Communications, Inc. v. United States*, No. 00-43, U.S. Court of Federal Claims (filed May 17, 2000).

Declaration of J. Gregory Sidak on behalf of United Parcel Service, In the Matter of Predatory Pricing Complaint Against Deutsche Post AG, Commission of the European Communities Directorate-General, Competition, Bruxelles (filed Feb. 11, 2000).

Ex Parte Reply Declaration of Jerry A. Hausman and J. Gregory Sidak on behalf of GTE Corporation, In the Matter of Applications for Consent to the Transfer of Control of Licenses, MediaOne Group, Inc., Transferor, To AT&T Corp., Transferee, Federal Communications Commission, CS Dkt. No. 99-251 (filed Nov. 1, 1999).

Declaration of Daniel L. Rubinfeld and J. Gregory Sidak on behalf of GTE Corporation, In the Matter of Applications for Consent to the Transfer of Control of Licenses, MediaOne Group, Inc., Transferor, To AT&T Corp., Transferee, Federal Communications Commission, CS Dkt. No. 99-251 (filed Aug. 23, 1999).

Reply Affidavit of Jerry A. Hausman and J. Gregory Sidak, appended to Comments of BellSouth Corporation *in* Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Second Further Notice of Proposed Rulemaking, Federal Communications Commission, CC Dkt. No. 96-98 (filed June 10, 1999).

Declaration of J. Gregory Sidak on behalf of Telecom Eireann, In the Matter of Local Loop Unbundling, Consultation Paper, Document No. ODTR 99/21, Office of the Director of Telecommunications Regulation, Republic of Ireland (filed June 8, 1999).

Affidavit of Jerry A. Hausman and J. Gregory Sidak, appended to Comments of the United States Telephone Association *in* Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Second Further Notice of Proposed Rulemaking, Federal Communications Commission, CC Dkt. No. 96-98 (filed May 26, 1999).

Affidavit of Thomas M. Jorde, J. Gregory Sidak, and David J. Teece, appended to Comments of the United States Telephone Association *in* Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Second Further Notice of Proposed Rulemaking, Federal Communications Commission, CC Dkt. No. 96-98 (filed May 26, 1999).

Prepared Statement of J. Gregory Sidak, Local Broadcast Ownership: An En Banc Hearing, Federal Communications Commission (Feb. 12, 1999).

Opinion of Law Concerning Initial Comments of Various Parties in *Direct Access to the INTELSAT System*, filed on behalf of Comsat Corporation in Direct Access to the INTELSAT System, Notice of Proposed Rulemaking, Federal Communications Commission, IB Dkt. No. 98-192 (filed Jan. 29, 1999).

Declaration of J. Gregory Sidak and David J. Teece on behalf of GTE Corporation in 1998 Biennial Regulatory Review of Spectrum Aggregation Limits for Wireless Telecommunications Carriers, Cellular Telecommunications Industry Association's Petition for Forbearance From the 45 MHz CMRS Spectrum Cap, Amendment of Parts 20 and 24 of the Commission's Rules of Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap Implementation of Sections 3(n) and 332 of the Communications Act Regulatory Treatment of Mobile Services, Notice of Proposed Rulemaking, Federal Communications Commission, WT Dkt. Nos. 98-205, 96-59, GN Dkt. No. 93-252 (filed Jan. 25, 1999).

Declaration of Robert W. Crandall and J. Gregory Sidak on behalf of Bell Atlantic Corporation and GTE Corporation, In the Matter of GTE Corporation, Transferor, and Bell Atlantic Corporation, Transferee, For Consent to Transfer of Control, Federal Communications Commission, CC Dkt. No. 98B184 (filed Dec. 23, 1998).

Opinion of Law Concerning the Constitutionality of the Commission's Proposal to Require Level 3 Direct Access to Space Segment Capacity on the INTELSAT System, filed on behalf of Comsat Corporation in Direct Access to the INTELSAT System, Notice of Proposed Rulemaking, Federal Communications Commission, IB Dkt. No. 98-192 (filed Dec. 22, 1998).

Direct Testimony and Cross Examination Testimony of J. Gregory Sidak on behalf of Public Service Company of New Mexico, Application of and Complaint by Residential Electric, Inc. *v.* Public Service Company of New Mexico, Case No. 2867, Application of Residential Electric, Inc. for a Certificate of Public Convenience and Necessity, Case No. 2868, New Mexico Public Utility Commission (Nov. 17, 1998).

Affidavit of J. Gregory Sidak on behalf of Public Service Company of New Mexico, Application of and Complaint by Residential Electric, Inc. *v.* Public Service Company of New Mexico, Case No. 2867, Application of Residential Electric, Inc. for a Certificate of Public Convenience and Necessity, Case No. 2868, New Mexico Public Utility Commission (filed Nov. 9, 1998).

Affidavit of Joseph Gregory Sidak on behalf of Hong Kong Telephone Company Limited, *Hong Kong Telephone Company Limited* v. *Office of the Telecommunications Authority*, High Court of the Hong Kong Special Administrative Region, Court of First Instance (filed Sept. 22, 1998).

Cross Examination Testimony of J. Gregory Sidak on behalf of the Edison Electric Institute in *Public Service Company of New Hampshire* v. *New Hampshire Electric Cooperative, Inc.*, Federal Energy Regulatory Commission, Dkt. No. EL96-53-002 (Sept. 10, 1998).

Prefiled Direct Testimony of J. Gregory Sidak on behalf of the Edison Electric Institute in *Public Service Company of New Hampshire* v. *New Hampshire Electric Cooperative, Inc.*, Federal Energy Regulatory Commission, Dkt. No. EL96-53-002 (filed Aug. 27, 1998).

Affidavit of J. Gregory Sidak on behalf of PECO Energy Company, *Omnipoint Corporation* v. *PECO Energy Company*, Federal Communications Commission, No. PA 97B002 (filed Aug. 5, 1998).

Affidavit of J. Gregory Sidak, appended to comments of the Newspaper Association of America, *in* 1998 Biennial Regulatory Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996, Notice of Inquiry, Federal Communications Commission, MM Docket No. 98-35 (filed July 21, 1998).

A Report to the Minister for Communications, the Information Economy, and the Arts on the State of Competition in Australian Telecommunications Services One Year after Deregulation (June 30, 1998) (prepared for Telstra Corporation Ltd.)

Affidavit of J. Gregory Sidak, appended to Comments of Telstra Corporation Ltd. *in* Declaration of Local Telecommunications Services, Australian Competition and Consumer Commission (May 21, 1998).

Opinion of Law Concerning the Commission's Authority to Permit the Acquisition by CanWest Global Communications Corporation of More Than 25 Percent of the Stock of an American Broadcast Licensee, Letter to William E. Kennard, Chairman, Federal Communications Commission (May 11, 1998).

Testimony of J. Gregory Sidak, *Bell Atlantic* v. *United States*, Case No. 96CV-8657 (E.D. Pa.) (Mar. 18, 1998) (investment tax credit refund litigation).

Deposition of J. Gregory Sidak, *Bell Atlantic* v. *United States*, Case No. 96CV-8657 (E.D. Pa.) (Mar. 3, 1998) (investment tax credit refund litigation).

Affidavit of J. Gregory Sidak, appended to Comments of the United States Telephone Association *in* Jurisdictional Separations Reform and Referral to the Federal-State Joint Board, Notice of Proposed Rulemaking, Federal Communications Commission, CC Docket No. 80-286 (filed Dec. 10, 1997), *and in* Amendment to Uniform System of Accounts for Interconnection, Notice of Proposed Rulemaking, Federal Communications Commission, CC Docket No. 97-212 (filed Dec. 10, 1997).

Cross Examination Testimony of J. Gregory Sidak on behalf of PECO Energy Company, Application of PECO Energy Company for Approval of Its Restructuring Plan Under Section 2806 of the Public Utility Code, Regarding the Enron Choice Plan, Pennsylvania Public Utility Commission, Dkt. Nos. R-00973953, P-00971265 (Nov. 17, 1997).

Prefiled Testimony of J. Gregory Sidak, Application of PECO Energy Company for Approval of Its Restructuring Plan Under Section 2806 of the Public Utility Code, Regarding the Enron Choice Plan, Pennsylvania Public Utility Commission, Dkt. Nos. R-00973953, P-00971265 (filed Nov. 7, 1997).

Prefiled Testimony of J. Gregory Sidak on behalf of El Paso Electric Company, City of Las Cruces, New Mexico, Federal Energy Regulatory Commission, Dkt. No. SC97-2-000 (filed Oct. 3, 1997).

Reply Comments of J. Gregory Sidak, Rules and Policies on Foreign Participation in the U.S. Telecommunications Market, Order and Notice of Proposed Rulemaking, Federal Communications Commission, IB Dkt. No. 97-142 (filed Aug. 11, 1997).

Prefiled Rebuttal Testimony of J. Gregory Sidak, Regarding an Economic Analysis of the Appropriate Standard of Conduct That Should Govern the Relationship Between PECO's Regulated Wire Business and Its Competitive, Unregulated Generation and Other Businesses and An Economic and Constitutional Analysis of the Justness and Reasonableness of PECO's Full Recovery of Its Stranded Costs, Application of PECO Energy Company for Approval of Its Restructuring Plan Under Section 2806 of the Public Utility Code, Dkt. No. R-00973953, Pennsylvania Public Utility Commission (filed July 18, 1997).

Statement of J. Gregory Sidak on behalf of Hong Kong Telephone Company Concerning Interconnect Access Charging Principles, Submission on the Hong Kong Local Interconnect Charging Regime, OFTA Review of Statement No. 7, Carrier-to-Carrier Charging, Office of Telecommunications Authority, Hong Kong (filed May 13, 1997).

Hearings on H.R. 22, The Postal Reform Act of 1997, Subcommittee on the Postal Service of the House Committee on Government Reform and Oversight, 105th Congress, 1st Session (Apr. 16, 1997).

Prefiled Testimony of J. Gregory Sidak, Regarding an Economic and Constitutional Analysis of the Justness and Reasonableness of PECO's Full Recovery of Its Stranded Costs, Application of PECO Energy Company for Approval of Its Restructuring Plan Under Section 2806 of the Public Utility Code, Dkt. No. R-00973953, Pennsylvania Public Utility Commission (filed Mar. 26, 1997).

Affidavit of J. Gregory Sidak and Daniel F. Spulber, appended to Comments of the United States Telephone Association *in* Usage of the Public Switched Network by Information Service and Internet Access Providers, Notice of Inquiry, Federal Communications Commission, CC Dkt. No. 96-263 (filed Mar. 24, 1997).

Reply Affidavit of J. Gregory Sidak and Daniel F. Spulber, appended to Reply Comments of the United States Telephone Association *in* Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing; Usage of the Public Switched Network by Information Service and Internet Access Providers, Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, Federal Communications Commission, CC Dkt. Nos. 96-262, 94-1, 91-213, 96-263 (filed Feb. 14, 1997).

Affidavit of J. Gregory Sidak and Daniel F. Spulber, appended to Comments of the United States Telephone Association *in* Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing; Usage of the Public Switched Network by Information Service and Internet Access Providers, Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, Federal Communications Commission, CC Dkt. Nos. 96-262, 94-1, 91-213, 96-263 (filed Jan. 29, 1997).

Testimony of J. Gregory Sidak on behalf of GTE South Inc., Petition of AT&T Communications of the South Central States, Inc., for Arbitration of Certain Terms and Conditions of a Proposed Agreement with GTE South Inc. Concerning Interconnection and Resale Under the Telecommunications Act of 1996, Case No. 96-478, Public Service Commission of Kentucky (Jan. 14, 1997).

Cross Examination Testimony of J. Gregory Sidak on behalf of GTE North Inc., In the Matter of Sprint Communications Company L.P.'s Petition for Arbitration of Interconnection Rates, Terms, Conditions and Related Arrangements with GTE North Inc., Case No. 96-10210-TP-ARB, Public Utilities Commission of Ohio (Nov. 21, 1996).

Testimony of J. Gregory Sidak on behalf of GTE South Inc., Petition of MCI, Public Service Commission of Kentucky (Nov. 12, 1996).

Direct Testimony of J. Gregory Sidak on behalf of GTE North Inc., Petition of Sprint, Public Utilities Commission of Pennsylvania (Nov. 7, 1996).

Direct Testimony of J. Gregory Sidak on behalf of GTE Midwest Inc., Petition of MCI, Public Utilities Commission of Indiana (Nov. 1, 1996).

Direct Testimony of J. Gregory Sidak on behalf of GTE Midwest Inc., *AT&T Communications of the Midwest Inc.* v. *GTE Midwest Inc.*, Iowa Utilities Board, Dkt. No. ARB-96-3 (Oct. 15, 1996).

Direct Testimony of J. Gregory Sidak on behalf of GTE North Inc., Petition of AT&T, Public Utilities Commission of Pennsylvania (filed Sept. 9, 1996).

Affidavit of J. Gregory Sidak, appended to Memorandum of Law in Support of Petition of the Energy Association of New York State in *Energy Association of New York State* v. *Public Service Commission of the State of New York*, Index No. 5830-96 (filed Supreme Ct. N.Y., County of Albany, Sept. 18, 1996).

Rebuttal Testimony of J. Gregory Sidak on behalf of Central Power and Light Company *in* Application of Central Power and Light Company for Authority to Change Rates, Competitive Issues Phase, Public Utility Commission of Texas, SOAH Dkt. No. 473-95-1563, PUCT Dkt No. 14965 (filed Aug. 1, 1996).

Reply Affidavit of J. Gregory Sidak, appended to Reply Comments of the United States Telephone Association *in* Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, Federal Communications Commission, CC Dkt. No. 96-112 (filed June 12, 1996).

Affidavit of J. Gregory Sidak, appended to Comments of the United States Telephone Association *in* Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, Federal Communications Commission, CC Dkt. No. 96-112 (filed May 31, 1996).

Affidavit of Michael J. Doane, J. Gregory Sidak, and Daniel F. Spulber, appended to Reply Comments of GTE Service Corporation *in* Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Federal Communications Commission, CC Dkt. No. 96-98 (filed May 30, 1996).

An Empirical Analysis of the Efficient Component-Pricing Rule and Sections 251 and 252 of the Telecommunications Act of 1996, appended to Comments of GTE Service Corporation *in* Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Federal Communications Commission, CC Dkt. No. 96-98 (filed May 16, 1996), co-authored with Michael J. Doane and Daniel F. Spulber.

Technological, Environmental and Financial Issues Raised by Increasingly Competitive Electricity Markets, Hearings before the Subcommittee on Energy and Power of the House Committee on Commerce, 104th Congress, 2d Session (Mar. 28, 1996).
Monopoly and the Mandate of Canada Post, in Submission of the Director of Investigation and Research, Competition Bureau, to Canada Post Corporation Mandate Review Committee (Ottawa, Feb. 15, 1996).

Reply Comments of J. Gregory Sidak, Market Entry and Regulation of Foreign-affiliated Entities, Notice of Proposed Rulemaking, Federal Communications Commission, IB Dkt. No. 95-22 (filed May 12, 1995).

Comments of J. Gregory Sidak, Market Entry and Regulation of Foreign-affiliated Entities, Notice of Proposed Rulemaking, Federal Communications Commission, IB Dkt. No. 95-22 (filed Apr. 11, 1995).

The Line-Item Veto Amendment: Hearings before the Subcommittee on the Constitution of the Senate Judiciary Committee, 104th Congress, 1st Session (Jan. 24, 1995).

Competition and Regulatory Policies for Interactive Broadband Networks, in Competition Policy, Regulation and the Information Economy: Submission of the Director of Investigation and Research, Bureau of Competition Policy, to the Canadian Radio-television and Telecommunications Commission, Public Notice CRTC 1994-130, Order in Council P.C. 1994-1689 (Ottawa, Jan. 16, 1995), co-authored with Robert W. Crandall.

Line Item Veto: The President's Constitutional Authority: Hearing before the Subcommittee on the Constitution of the Senate Judiciary Committee, 103d Congress, 2d Session (June 15, 1994).

Opinion of Law Concerning Legislation to Reform the Cost-Justification Defense to Discrimination in the Sale of Telecommunications Services, Letter to Ms. Deena Shiff, General Manager, Corporate Affairs, Telstra Corporation Limited, Sydney, New South Wales, Australia (Jan. 13, 1994) (distributed to the Australian Parliament).

Brief of *Amicus Curiae* J. Gregory Sidak, Association of American Physicians and Surgeons, Inc. *v.* Hillary Rodham Clinton, 997 F.2d 898 (D.C. Cir. 1993), filed Apr. 5, 1993.

BAR ADMISSIONS

California (1982); District of Columbia (1989); Supreme Court of the United States (1989).

MEMBERSHIPS

Cosmos Club, Washington, D.C.

PERSONAL INFORMATION

American citizen, born August 17, 1955. Married to Melinda Ledden Sidak. Four sons: Gunnar, Christian, Colin, and Lachlan. Resident of Washington, D.C.

June 1, 2010

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF FLORIDA

In Re: Petition of DeltaCom, Inc. for order determining DeltaCom, Inc. not liable for access charges of KMC Data LLC, and Hypercube Telecom, LLC	)	Docket No. 090327-TP

EXPERT REPORT
OF
J. GREGORY SIDAK

EXHIBIT _____(JGS-2)

On behalf of

Hypercube Telecom, LLC

PUBLIC VERSION

June 15, 2010

I. THE SERVICES THAT HYPERCUBE HAS SUPPLIED TO DELTACOM PURSUANT TO ITS PRICE LIST

1. Hypercube's provision of access service to DeltaCom uses several different components and points of connection. The charges that attend each individual call are based on the specific functions that Hypercube performs in the course of its transport of the call. When an end user places a toll-free call on a CMRS carrier's network, the call must be routed to the proper IXC whose 8YY customer the wireless end user seeks to reach. For the wireless user's call to reach the appropriate 8YY subscriber, several functions must be performed.

A. The Architecture of Local Access

2. Hypercube provides access and database query services to enable the transport of toll-free calls placed by wireless end users over the networks of CMRS carriers with which Hypercube has contracts. Figure 1 illustrates the individual steps that occur when a call is routed through Hypercube to reach an 8YY subscriber on DeltaCom's network.[1] Hypercube prefers to interconnect directly with the IXC to which the 8YY traffic is ultimately being delivered. Indeed, Hypercube offers direct interconnection through individually negotiated contracts, in contrast to its indirect connections for which it charges rates pursuant to its price list.[2] Direct connections are more cost effective than indirect connections. In addition to achieving this cost reduction, IXCs avoid the cost of the ILEC's transport and switching services. Hypercube delivers about 90 percent of its wireless-initiated

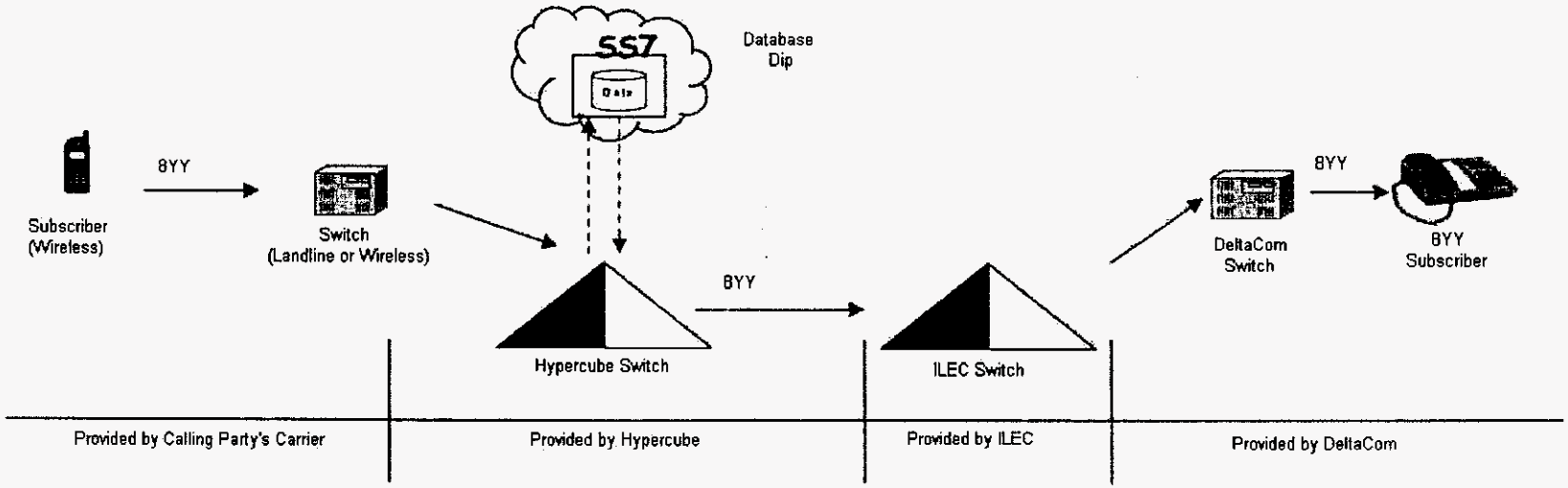
1. Figure 1 addresses the PSC's question 1 in its "Issues List," which was included as an attachment to the Order Establishing Procedure that the Commission filed on April 20, 2010. Question 1 states: "What services, if any, are being provided by Hypercube to DeltaCom (or other carriers in the call flow) and how?" I address parts a and b of this same question in Part I.B. Order Establishing Procedure, Attachment A, *In re* Petition of DeltaCom, Inc. for Order Determining DeltaCom, Inc. Not Liable for Access Charges of KMC Data, LLC, and Hypercube Telecom, LLC, Dkt. No. 090327-TP (P.S.C. Fl. Apr. 20, 2010) [hereinafter *PSC Issues List*].

2. Answer to Amended Petition of DeltaCom, Inc. and Amended Counterclaim of Hypercube Telecom, LLC f/k/a KMC Data, LLC, ¶ 113, In re: Petition of DeltaCom, Inc. for Order Determining DeltaCom, Inc. Not Liable for Access Charges of KMC Data LLC, Hypercube LLC, and Hypercube Telecom, LLC, Dkt. No. 090327 (P.S.C. Fl. Nov. 23, 2009) [hereinafter *Hypercube Answer to First Amended Petition*].

8YY traffic in the United States to IXCs with which it is directly interconnected. Although Hypercube has repeatedly offered DeltaCom the opportunity to interconnect directly with Hypercube, DeltaCom has declined to do so.[3] For this reason, Figure 1 illustrates the routing of a wireless-initiated 8YY call through indirect interconnection between DeltaCom and Hypercube.

3. *Id.*

FIGURE 1: INDIRECT INTERCONNECTION BETWEEN HYPERCUBE AND DELTACOM FOR THE DELIVERY OF A WIRELESS-INITIATED 8YY CALL



3. When the wireless end user places the 8YY call, the CMRS carrier transports the call to its own switch, the MTSO. Hypercube picks up the call from the MTSO, transports the call to Hypercube's switch, and then performs the critical "database dip." The dip is a search query by which Hypercube determines where it must transport the call.[4] I understand that Hypercube does not know the identity of the IXC to which it must deliver the 8YY call until after it has performed the dip at its own expense. Upon completing the query, Hypercube obtains the necessary information to transport the call either directly to the IXC, which transports the call to the 8YY subscriber, or to an ILEC with which the correct IXC interconnects. As noted above, DeltaCom has chosen not to interconnect directly with Hypercube in Florida. Consequently, when routing a call to one of DeltaCom's 8YY subscribers, Hypercube must transport the call to an ILEC interconnected with DeltaCom. The ILEC routes the call to DeltaCom, which then routes the call to the 8YY subscriber.[5] The ILECs with which Hypercube interconnects to route 8YY traffic to DeltaCom in Florida include AT&T and Verizon. The terms of Hypercube's interconnection agreements (ICAs) with AT&T and Verizon have been approved by the Commission under section 252 of the Telecommunications Act of 1996.[6] The terms of the ICAs generally require Hypercube to pay for interconnection circuits to the ILEC and to pay for usage under certain circumstances.

4. By allowing DeltaCom to access Hypercube's switched network for the purpose of originating a toll-free call from a wireless end user to one of DeltaCom's 8YY

4. BELL COMMUNICATIONS RESEARCH, BOC NOTES ON THE LEC NETWORKS at 14-35 (1994) [hereinafter BOC NOTES ON THE LEC NETWORKS].

5. DeltaCom's role in the network architecture may also be referred to as that of the Responsible Organization, or "RESPORG." A RESPORG is a company designated by its 8YY customer to own and manage 8YY database records for the customer's toll-free number.

6. 47 U.S.C. § 252.

subscribers, Hypercube is providing switched-access service to DeltaCom. Because Hypercube is not directly interconnected with DeltaCom, the access service is known as tandem switching.

B. The Mechanics of Access Charges

5. Hypercube is entitled to several different types of charges for the performance of its tandem-switching service. Table 1 lists the various charges that accompany the steps described in Figure 1.[7]

TABLE 1: SWITCHED TRANSPORT AND QUERY CHARGES FOR WIRELESS-INITIATED 8YY INTRASTATE CALLS ROUTED OVER HYPERCUBE'S NETWORK IN FLORIDA, 2010

Switched Access Rates

Access Charge		Rate	Basis for Rate Assessment
Blended Carrier Switched Access Originating	$	0.025	Per Access Minute

8YY Database Access Service Queries

Access Charge		Rate	Basis for Rate Assessment
Basic Query	$	0.005	Per Query

Source: Hypercube Intrastate Access Tariff, Florida Price List No. 3, 1st Revised Page 45-47 (Aug. 26, 2006).

6. For every intrastate 8YY call in Florida that is initiated on a CMRS carrier's network with which Hypercube has an intercarrier contract and routed through Hypercube's tandem-switched network, Hypercube assesses a blended rate for the origination of the

7. Table 1 addresses the PSC's Question 1.a: "Do [Hypercube's] services fit into the regulatory framework in Florida? If so, how?" Given that the Commission has approved the Hypercube's price list for its provision of tandem-switched access service, that service fits into Florida's regulatory framework. Similarly, Table 1 addresses the Commission's Question 6: "Do the rates, terms, and conditions in Hypercube's price list comply with applicable law? Which rates, terms, and conditions, if any apply to DeltaCom and how do they apply?" As DeltaCom receives service from Hypercube, the rates that Hypercube charges pursuant to its price list, as presented in Table 1, apply to DeltaCom. Table 1 also goes to answering the Commission's Question 5: "Did the bills rendered to DeltaCom comply with applicable law? If not, what action, if any, should the Commission take?" I am informed by Hypercube that the bills it issued to DeltaCom were issued pursuant to its Commission-approved price list; consequently, those bills comply with applicable law. *PSC Issues List*.

tandem access,[8] which compensates Hypercube for the cost of switching and transporting the call from its switch to the ILEC's or IXC's switch.

7. For all wireless-initiated 8YY calls routed over its network, Hypercube assesses a Basic Query charge, which compensates it for retrieving information, including the identification of the 8YY subscriber to which the call will be delivered and the routing information necessary to transport the call.

8. As Figure 1 indicates, the individual rate components that Hypercube charges for each element of service delivered correspond to the diagram as follows. When Hypercube picks up a call from the MTSO, it incurs a cost for carrying the call on its tandem network; thus, it assesses the Blended Carrier Switched Access Originating charge. Next, it performs the database dip and thus assesses the Basic Query Charge. Then, Hypercube transports the call from its switch to the relevant ILEC or IXC switch. I am informed by Hypercube that the average duration of a wireless-initiated 8YY call carried on Hypercube's network in Florida is [redacted] minutes.

C. A Typical Transaction Between a CMRS Carrier, Hypercube, and an IXC

9. Although the charges will vary by individual call on the basis of duration and length of transport, a transaction between a CMRS carrier, Hypercube, and an IXC might plausibly be described as follows: a wireless end user places a call from Tampa, where Hypercube has a switch, over T-Mobile's network to Office Depot, based in Boca Raton, to order office supplies from the company's catalogue. The call lasts [redacted] minutes, including the time that the caller is placed on hold. The call is transported from T-Mobile's MTSO, where Hypercube picks it up, to Hypercube's own switch in Tampa. Therefore, Hypercube's total

8. Hypercube's blended rates for switched access include the costs of switching and transport. Hypercube Intrastate Access Tariff, Florida Price List No. 3, 1st Revised Page 46 (Aug. 26, 2006).

charge to DeltaCom for this call is [redacted]. The ILEC with which DeltaCom directly interconnects charges DeltaCom for its own provision of services.

10. Hypercube engages in this type of transaction with many IXCs in Florida. With respect to the majority of its IXC customers, excluding only DeltaCom, Level 3, and Excel (which also have refused to pay Hypercube's tariffed charges for transport, database query, and switching of 8YY calls in other states), Hypercube has had no cause to file complaints for nonpayment of services rendered. Combined, DeltaCom, Level 3, and Excel received less than 10 percent of the total amount of 8YY traffic that Hypercube delivered in Florida in 2009. Put differently, Hypercube received payment for over 90 percent of the 8YY traffic it delivered in Florida in 2009. Table 2 lists the total minutes of 8YY traffic that Hypercube transported in 2009 for each of the IXCs which Hypercube serves.

TABLE 2: TOTAL MINUTES OF WIRELESS-INITIATED 8YY TRAFFIC TRANSPORTED BY HYPERCUBE IN FLORIDA, JAN. 2009 – DEC. 2009

Source: Hypercube confidential and proprietary data.

II. THE RELEVANT FRAMEWORK OF FEDERAL AND STATE REGULATION OF CLEC ACCESS RATES FOR 8YY CALLS

11. Regulation of both CMRS and CLEC access rates are at the core of this dispute between Hypercube and DeltaCom. The deregulation of wireless has had the incidental effect of preventing CMRS carriers from filing tariffs to collect compensation from IXCs for 8YY calls initiated on their wireless networks. Obviously, the inability of CMRS carriers to recover costs of access by tariff did not make those costs disappear. Understandably, this inability on the part of wireless carriers to charge IXCs tariffed rates for the provision of local access and transport of 8YY calls stimulated demand among wireless carriers to use CLECs to provide tandem-switching services to reduce the extent of the uncompensated portion of the cost of transporting 8YY calls to IXCs.

12. Hypercube is one such supplier of tandem switching. In conformity with both FCC and PSC regulations, Hypercube provides DeltaCom service for the delivery of 8YY intrastate calls pursuant to its price list. As a matter of Florida public utility law, DeltaCom is

obliged to make, and Hypercube is entitled to receive, payment for provision of those intrastate services.

A. Regulatory Policies That Prevent Wireless Carriers from Directly Recovering the Costs of Delivering 8YY Calls Originating on Their Networks

13. Current telecommunications law is not technology-neutral with respect to compensation for the provision of access services for toll-free calls. Although CMRS providers and LECs are entitled to compensation for use of their networks, CMRS carriers face a different regulatory regime than do wireline CLECs. Unlike competitive LECs, CMRS carriers are not entitled to file tariffs for services. In the context of 8YY calling, this regulatory nuance has the incidental effect of preventing a CMRS carrier from billing tariffed rates to an IXC for the costs incurred to deliver a toll-free call to the IXC's switch. If a CMRS carrier receives any compensation for the origination of an 8YY call, it is through a privately negotiated contract with the IXC.

1. Although CMRS Carriers Incur Costs for 8YY Calls Originating on Their Wireless Networks, an Artifact of Deregulation Prevents Them from Recovering Those Costs by Charging Tariffed Rates to the IXCs That Benefit From, and Whose 8YY Subscribers Cause, Those Costs

14. In its *Second Report and Order* on the regulatory treatment of mobile services, released in 1994, the FCC announced that it would henceforth "forbear from requiring *or permitting* tariffs for interstate service offered directly by CMRS providers to their customers."[9] The reasoning that the agency gave for undertaking this forbearance was that, unlike the CLEC market, the market for wireless access was highly competitive.[10] Consequently, "access tariffs seem[ed] unnecessary."[11]

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9. Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, Second Report and Order, GN Dkt. No. 93-252, 9 F.C.C. Rcd. 1,411, 1,480 ¶ 179 (1994) (emphasis added).
10. *Id.*
11. *Id.*

15. In its declaratory ruling in response to petitions filed by Sprint PCS and the old AT&T, the FCC further clarified in 2002 that, although it did not oppose a CMRS carrier's right to "*seek* to collect access charges," it rejected the proposition that a CMRS carrier may use a tariff to "*unilaterally impose* such charges on [an IXC]."[12] The FCC observed that, in addition to there being sufficient competition among CMRS providers, another factor influencing its decision to compel detariffing of wireless services was the fact that, "since the advent of commercial wireless service . . . CMRS Carriers have charged their end users both to make and receive calls."[13] Relative to market conditions in 2010, this fact was a more persuasive consideration when the FCC issued its *Second Report and Order* in 1994 and even when it released its declaratory ruling on CMRS access charges in 2002. Over the past decade, however, the average revenue per minute of use for wireless subscriptions has fallen, such that CMRS carriers are less able today simply to absorb the cost of supplying originating access for toll-free calls.[14] Moreover, in a competitive market an increase in marginal cost is passed on by all firms to their customers in the form of higher prices.[15] Consequently, if private negotiations between the CMRS carrier and the IXC founder on the question of cost recovery for the provision of originating access, then the CMRS carrier will be forced to embed the cost of originating access into a higher price charged to end users for their subscriptions to wireless service.

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12. Petitions of Sprint PCS and AT&T Corp. for Declaratory Ruling Regarding CMRS Access Charges, 17 F.C.C. Rcd. 13,192, 13,196 ¶ 8 (2002) (Declaratory Ruling) (emphasis in the original) [hereinafter *2002 Sprint PCS/AT&T Corp. Declaratory Ruling*].

13. *Id.* at 13,198 ¶ 14.

14. In Part III, I analyze the growth in demand for wireless access and the implications of that growth for the demand for 8YY calls.

15. *See, e.g.*, Gregory Werden, Luke Froeb & Steven Tschantz, *The Effects of Merger Efficiencies on Consumers of Differentiated Products*, 1 EUR. COMPETITION J. 245 (2005); Adriaan ten Kate & Gunnar Niels, *To What Extent Are Cost Savings Passed On to Consumers? An Oligopoly Approach*, 20 EUR. J.L. & ECON. 323 (2005).

2. When a Cost Is Evaded by the End User or Carrier That Causes It, a Negative Externality Results That Reduces Economic Efficiency and Harms the Public Interest

16. The current regime of access charges for 8YY calls originating on wireless networks creates a classic opportunity, as DeltaCom's behavior illustrates, for a negative externality to arise. An externality is an "[a]ction by either a producer or a consumer which affects other producers or consumers, but is not accounted for in the market price."[16] Negative externalities occur when one party takes costly actions for which it can avoid the obligation to pay. The cost, consequently, falls on another party. Negative externalities are inefficient because they misalign the incentives of both parties—the cost causer and the cost bearer. The cost causer has the incentive to consume excessive amounts of the "free" resource, regardless of its true cost to society to produce. The cost bearer has the incentive to invest too little in the production of the "free" resource because it cannot capture for itself the benefits of such investment. The results are deadweight loss in allocative and dynamic efficiency and a diminution in total consumer welfare.

17. Toll-free calling creates a negative externality because the primary beneficiaries of 8YY calling—the 8YY subscribers—do not bear the full cost of the 8YY calls they receive if the IXCs from which they procure 8YY service are permitted to refuse to compensate CMRS carriers for the cost of carrying the calls. In this case, the cost is ultimately borne by CMRS subscribers because the wireless market is competitive. If, contrary to the current regulatory regime, CMRS carriers were permitted to bill IXCs for the costs of originating 8YY calls, IXCs would pass some or all of that cost onto their 8YY subscribers, depending on the intensity of competition among suppliers of 8YY service. This

16. ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 642 (6th ed. 2005).

alternative regulatory regime would eliminate the negative externality by forcing the beneficiaries of toll-free calling to bear a proportionate share of the cost that they cause.

18. But that alternative regulatory regime does not exist. It is merely a hypothetical to help explain why the mandatory detariffing of wireless has led to a curious market failure with respect to toll-free calls. Because wireless service providers are not permitted to bill IXCs for the costs of initiating 8YY calls (outside privately negotiated agreements), wireless carriers must pass their increased costs onto their own wireless subscribers. However, given that the nature of a toll-free call is that it is "free" on a per minute basis to the end user making the call, CMRS carriers lack the ability to charge—specifically and incrementally—the callers who actually make 8YY calls. Instead, CMRS carriers must charge *all* of their wireless customers higher prices in an indiscriminate manner that is neither specific nor incremental with respect to the benefits of, and cost causation associated with, the making of 8YY calls. Forcing wireless end users who do not make use of toll-free calling to bear the cost of 8YY calling is inefficient. This subset of wireless end users contains neither beneficiaries nor cost causers of 8YY services originating on wireless networks.

3. DeltaCom's Withholding of Payment to Hypercube Corresponds to DeltaCom's Unexplained Addition of Approximately [redacted] Million Minutes of Use of Hypercube's Network to Deliver Wireless-Initiated 8YY Calls in Florida After It Reported to Hypercube an Implausibly High Rate of 100-Percent Interstate Usage

19. The empirical evidence indicates that DeltaCom's withholding of payment to Hypercube corresponds to an upsurge of approximately [redacted] million total minutes of use over the period spanning October 2007 to December 2009,[17] after DeltaCom reported 100

17. I performed the following analyses based on the monthly billing data from January 2006 to December 2009.

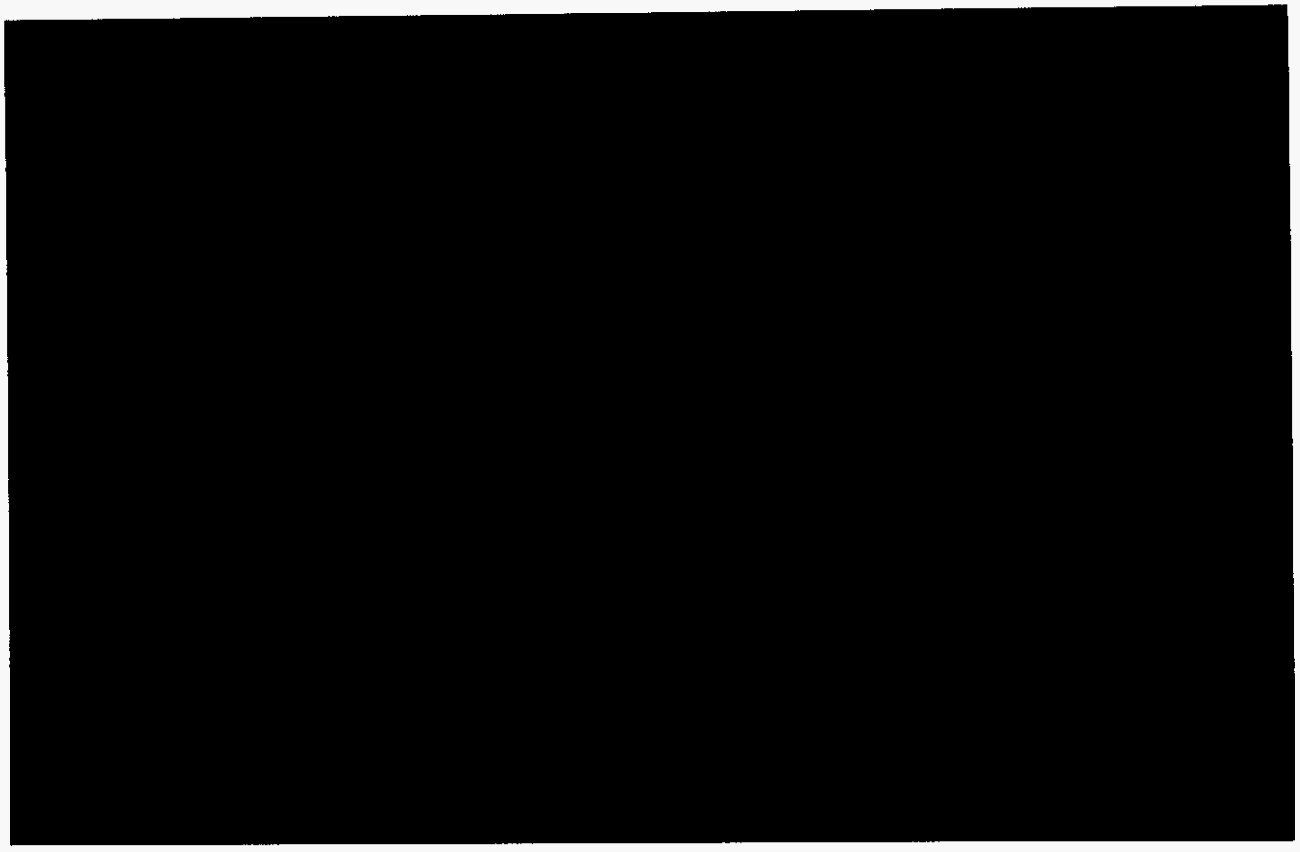
percentage of interstate use (PIU) to Hypercube. Using Hypercube proprietary billing data and raw call data, I show in this Part both that the upsurge of DeltaCom's total minutes of use is unexplained by the industrial demand factors and that its reported 100-percent PIU is implausibly high. Because interstate rates are significantly lower than intrastate rates of use, DeltaCom's reporting of a 100-percent PIU is consistent with a fraudulent attempt to reduce its expected legal liability for refusing to pay the access rates that Hypercube charges pursuant to its price list.

20. Figure 2 depicts the monthly intrastate minutes of use corresponding to wireless-initiated 8YY traffic that Hypercube transported for DeltaCom, Excel, Level 3, the IXC with [redacted], and all the IXCs except for the non-paying ones from January 2006 through December 2009.[18] Note that because the volume of traffic transported for DeltaCom, Level 3, and Excel is relatively small, I used a secondary axis on the right side of Figure 2 with a smaller scale for these three IXCs. Figure 2 reveals at least three interesting patterns: (1[redacted] IXC customer of Hypercube, [redacted], and all the IXCs aggregated except for the non-paying ones exhibited robust increasing consumption

18. [redacted]

of wireless-initiated 8YY minutes in Florida through the first half of 2009, even though the recent recession had started by the end of 2007; (2) after DeltaCom reported a 100-percent PIU to Hypercube for its wireless-initiated 8YY intrastate transportation services in October 2007, DeltaCom, Level 3, and Excel all experienced a significant increase in their consumption of wireless-initiated 8YY intrastate minutes of use relative to their own trends of past growth; and (3) before the overall consumption of wireless-initiated 8YY minutes in Florida began to decrease in the second half of 2009, both Level 3 and Excel experienced abrupt declines in their wireless-initiated 8YY intrastate minutes of use that offset their increased consumption after they ceased to pay Hypercube.

FIGURE 2: SELECTED IXCS' INTRASTATE MINUTES OF WIRELESS-INITIATED 8YY TRAFFIC TRANSPORTED BY HYPERCUBE IN FLORIDA, JAN. 2006 – DEC. 2009



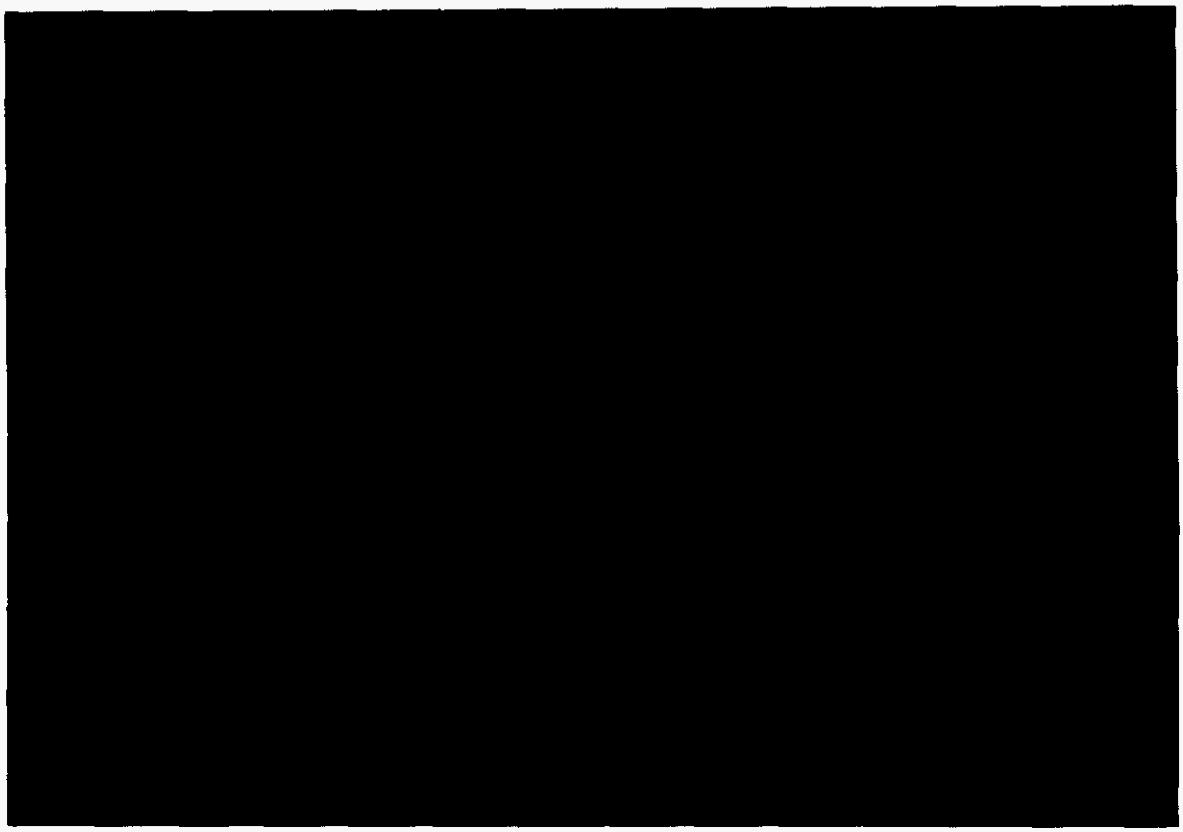
Source: Hypercube confidential and proprietary data.

a. IXC Demand for 8YY Intrastate Minutes of Use in Florida

21. It is possible that the volume of 8YY traffic depends on overall economic activity. Figure 3 depicts the link between the change of Florida employment and the wireless-initiated 8YY intrastate traffic that Hypercube transported in Florida from January 2006 through December 2009 for all its IXC customers except the three non-paying IXCs. To detect more clearly the correlation between 8YY minutes of use and the macroeconomic variable, the year-on-year percentage change of the Florida employment is shown with a six-month lag. It is curious that the intrastate minutes of use increased from the beginning of 2006 through the second quarter of 2009 (that is, through the early part of the recent

recession), which makes the growth in the intrastate minutes of use difficult to link to the macroeconomic variable, even considering lag effects.

FIGURE 3: WIRELESS-INITIATED 8YY INTRASTATE TRAFFIC TRANSPORTED BY HYPERCUBE IN FLORIDA VERSUS EMPLOYMENT GROWTH, JAN. 2006 – DEC. 2009



Sources: Hypercube confidential and proprietary data; Bureau of Labor Statistics, http://www.bls.gov/data/.

22. Without further information on the overall increase of wireless-initiated 8YY intrastate minutes of use in Florida from the beginning of 2006 through the end of the second quarter of 2009, a simple potential explanation is that the traffic associated with wireless-initiated 8YY intrastate calls on Hypercube's network consistently increased during this period. Considering the effect of the recession during a later part of the sample, I performed the following empirical analysis of the demand for wireless-initiated 8YY intrastate service

in Florida for two sample periods—a full sample from January 2006 to December 2009 and a subsample, starting from November 2007, that covers the recession period:

[1] $\quad 8YY\ MOU_t = \alpha + \beta\ \text{Demand Indicator}_t + e_t$

where,

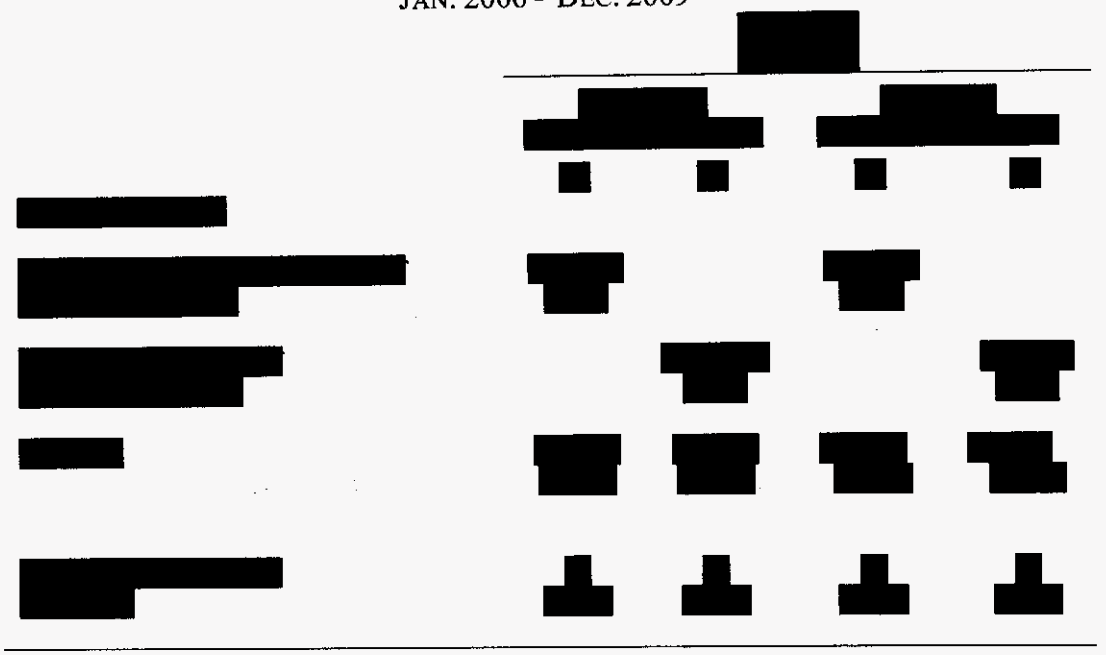
$8YY\ MOU_t$	=	wireless-initiated 8YY intrastate minutes of use for all IXCs, served by Hypercube except Excel, Level 3, and DeltaCom in Florida in month t (in millions)
$\text{Demand Indicator}_t$	=	the year-on-year percentage change of Florida employment or the year-on-year growth of national retail sales index in month t (in percent) with a 12-month lag
e_t	=	the residual

In Equation [1], I regressed the wireless-initiated 8YY intrastate minutes of use for all IXCs (except Level 3, Excel, and DeltaCom) served by Hypercube in Florida on the demand factors related to wireless-initiated 8YY service. Intuitively, any macroeconomic factors indicating market demand in Florida will have an effect on the total wireless-initiated 8YY intrastate minutes of use provided by Hypercube.

23. Table 3 reports two alternative specifications of the demand model in each sample period. The explanatory variable in columns (1) and (3) is the year-on-year percentage change of Florida employment. The explanatory variable in columns (2) and (4) is the percentage growth of the national retail sales index. The demand model results show that Hypercube's wireless-initiated 8YY intrastate minutes of use in Florida are *not* explained by

either of these the macroeconomic variables. The coefficients in regressions of both samples bear the wrong sign and are statistically significant in all four specifications.[19]

TABLE 3: DEMAND MODEL FOR WIRELESS-INITIATED 8YY INTRASTATE MINUTES OF USE PROVIDED BY HYPERCUBE IN FLORIDA, JAN. 2006 – DEC. 2009



Sources: Hypercube confidential and proprietary data; Bureau of Labor Statistics, http://www.bls.gov/data/; Global Insight, United States Economic Data.
Note: *** Indicates that the coefficient is significant at the 1 percent level.

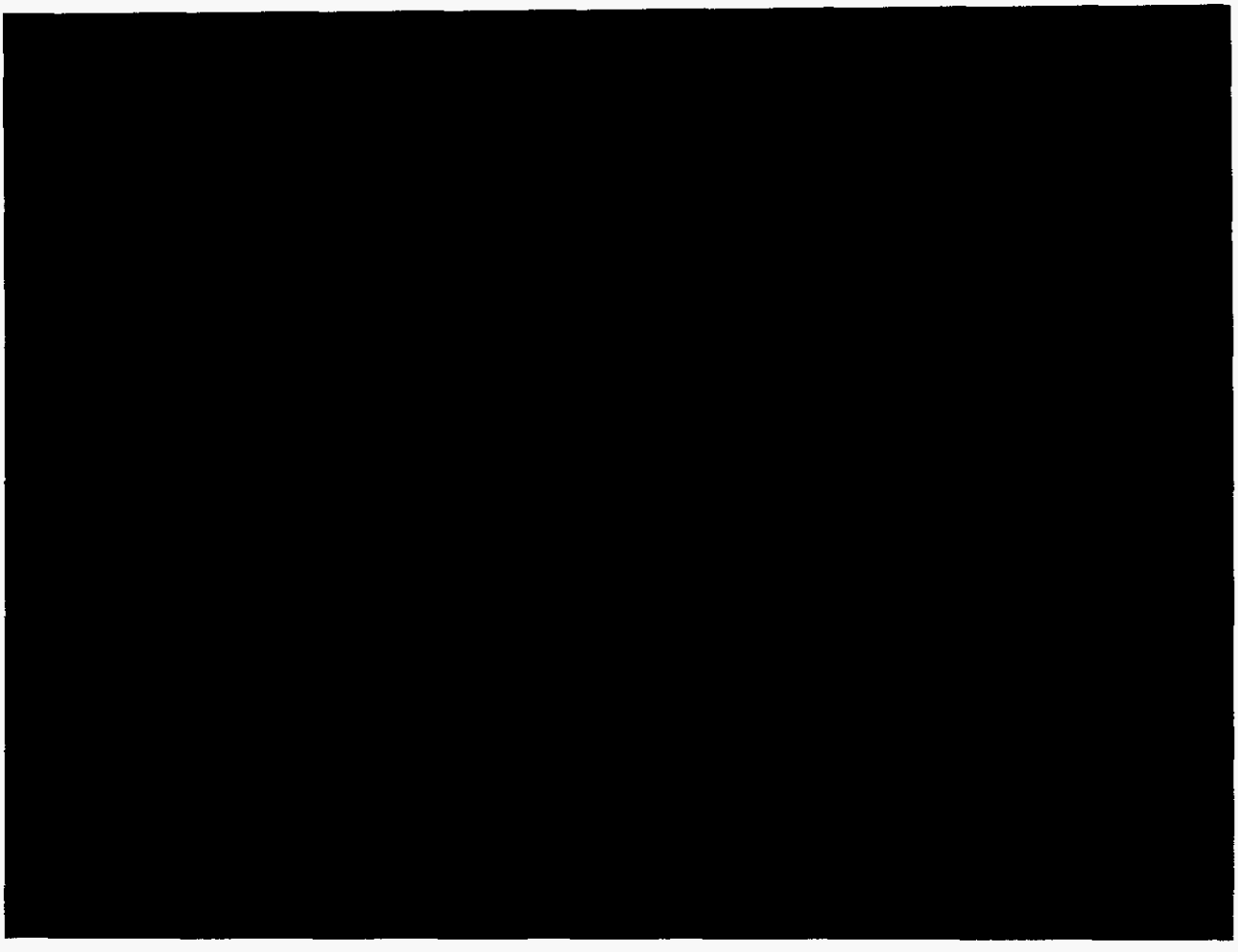
b. DeltaCom's Unexplained Additional Minutes of Use of Hypercube's Network to Deliver Wireless-Initiated 8YY Intrastate Calls in Florida

24. Given the unexplained nature of the wireless-initiated 8YY intrastate traffic that Hypercube transported in Florida from 2006 through 2009, I took the total 8YY intrastate minutes of use of all paying IXCs as a given industry level of the consumption of wireless-initiated 8YY intrastate traffic and as a reference level to DeltaCom's consumption. In Figure 4, I plotted the industry's wireless-initiated 8YY intrastate minutes of use versus DeltaCom's wireless-initiated 8YY intrastate minutes of use. The vertical line shows the

19. Because the correlation between the two explanatory variables exceeds 80 percent, I did not include them simultaneously in the model due to multicolinearity concerns.

critical point in October 2007 when DeltaCom reported a PIU of 100 percent, which Hypercube disputed.

FIGURE 4: INDUSTRY'S MINUTES OF USE FOR WIRELESS-INITIATED 8YY INTRASTATE CALLS SERVED BY HYPERCUBE IN FLORIDA VERSUS DELTACOM'S MINUTES OF USE, JAN. 2006 – DEC. 2009



Source: Hypercube confidential and proprietary data.

25. Figure 4 shows that the pattern of DeltaCom's 8YY intrastate traffic over Hypercube's network in Florida followed the pattern of traffic for the overall industry from January 2006 through September 2007. However, after DeltaCom reported an implausible 100-percent PIU to Hypercube in October 2007, the volume of DeltaCom's minutes of use

for wireless-initiated 8YY intrastate calls grew significantly, relative to its own previous consumption. At its peak in March 2009, the volume of DeltaCom's wireless-initiated 8YY intrastate traffic on Hypercube's network in Florida was [redacted] DeltaCom's largest monthly volume for the period ending in September 2007, before it began to report a 100-percent PIU.

26. To test whether DeltaCom's consumption as a percentage of the industry's consumption of intrastate 8YY traffic changed in the two sub-periods, I ran a regression of DeltaCom's consumption using the total consumption of 8YY intrastate traffic of all IXCs except for the non-paying ones in Florida as the independent variable and performed a break test. A break test is an intellectually rigorous methodology that had been widely applied in economic empirical research to analyze differences over two or more subsamples.[20] Essentially, the regression specifies that the value of the coefficient on an independent variable could change across different subsamples and thereby allows one to test whether that change is statistically significant. The regression includes the interactions of the independent variables with the dummy variable that represents each subsample:

[2] DeltaCom's $MOU_t = \alpha_{before} D_{1,t} + \alpha_{after} D_{2,t} + \beta_{before}$ Industry's $MOU_t * D_{1,t} + \beta_{after}$ Industry's $MOU_t * D_{2,t} + e_t$

where,

DeltaCom's MOU_t = the wireless-initiated 8YY intrastate minutes of use for DeltaCom, served by Hypercube in Florida in month t (in millions)

Industry's MOU_t = the wireless-initiated 8YY intrastate minutes of use

20. *See, e.g.*, Timothy Vogelsang, *Wald-Type Tests for Detecting Breaks in the Trend Function of a Dynamic Time Series* 13 ECONOMETRIC THEORY 818 (1997); *see also* Robert F. Engle, *Wald, Likelihood Ratio, and Lagrange Multiplier Tests in Econometrics*, 2 HANDBOOK OF ECONOMETRICS 796 (Zvi Griliches & Michael D. Intriligator eds., 1984).

		by all IXCs, except the non-paying ones, served by Hypercube in Florida in month t (in millions)
$D_{1,t}$	=	the dummy variable taking a value of 1 if t corresponds to the subsample before DeltaCom's began to report 100-percent PIU and a value of 0 otherwise
$D_{2,t}$	=	the dummy variable taking a value of 1 if t corresponds to the subsample after DeltaCom's began to report 100-percent PIU and a value of 0 otherwise
e_t	=	the residual

Table 4 reports the results of this regression.

TABLE 4: RESULTS OF THE BREAK TEST OF DELTACOM'S WIRELESS-INITIATED INTRASTATE MINUTES OF USE AS A FUNCTION OF THE INDUSTRY'S WIRELESS-INITIATED 8YY INTRASTATE MINUTES OF USE, JAN. 2006 – OCT. 2007

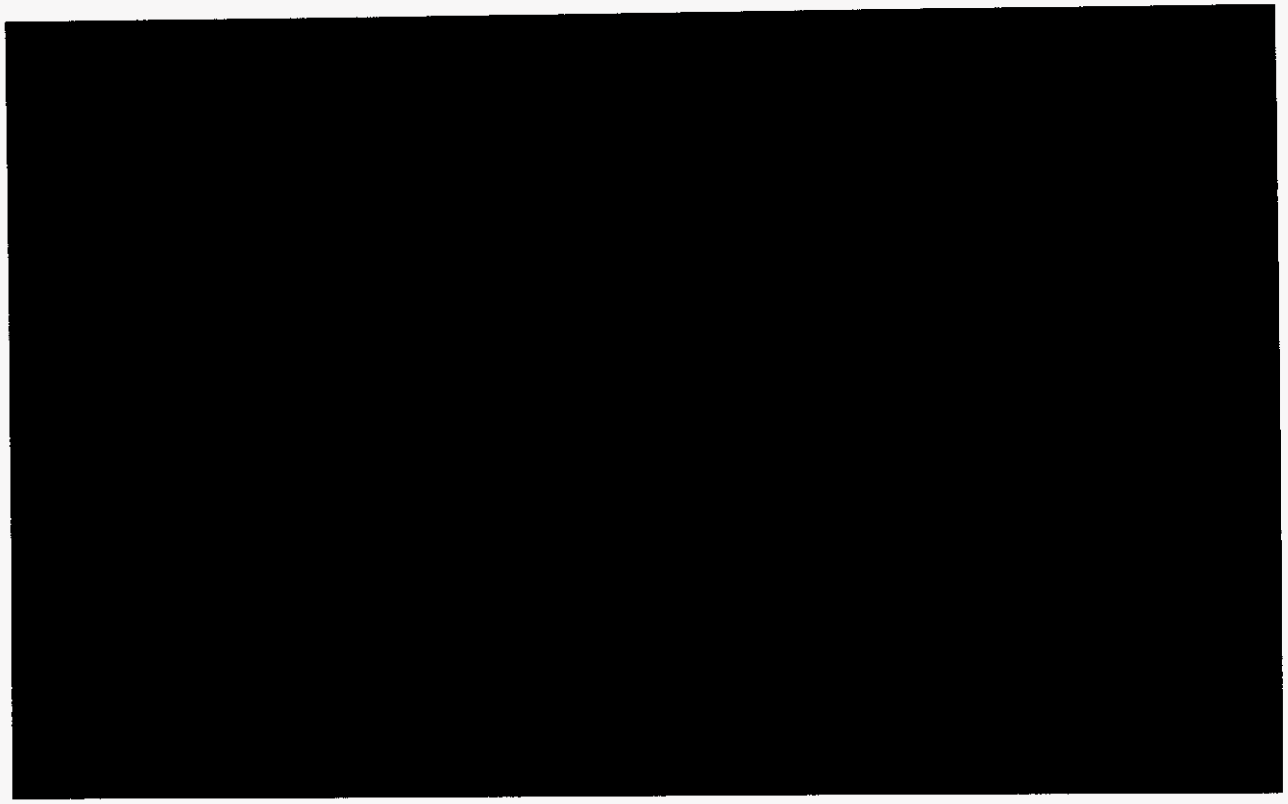
Source: Hypercube confidential and proprietary data.

Note: *** Indicates that the coefficient is significant at the 1-percent level; ** indicates that the change in the coefficient across two subsamples is significant at the 5-percent level.

27. The interpretation of the coefficient on the industry's wireless-initiated 8YY intrastate minutes of use is that DeltaCom is estimated to have 2.4 percent and 7.2 percent of total wireless-initiated 8YY intrastate volume for all IXCs (except itself and other non-paying IXCs) served by Hypercube in Florida before and after it began to report 100-percent PIU in October 2007. DeltaCom's consumption of minutes of use on Hypercube's network in Florida as a percentage of the industry's consumption increased at a 5-percent level of statistical significance, as shown in the last line of Table 4.

28. I derived the unexplained increase in DeltaCom's wireless-initiated 8YY intrastate minutes of use, which is the difference between DeltaCom's minutes of use (the solid line in Figure 5) and its predicted minutes of use (the dashed line) using the regression result in Column (1) of Table 4, which is based on the DeltaCom's wireless-initiated 8YY intrastate minutes of use before it began to report a 100-percent PIU.

FIGURE 5: THE UNEXPLAINED INCREASE IN DELTACOM'S MINUTES OF USE OF HYPERCUBE'S NETWORK TO TRANSPORT 8YY INTRASTATE CALLS ORIGINATING ON WIRELESS NETWORKS IN FLORIDA, JAN. 2006 – DEC. 2009



Source: Hypercube confidential and proprietary data.

29. Considering the abnormal change in DeltaCom's reported PIU in October 2007 and the absence of information about the actual PIU, the unexplained intrastate minutes of use then amounted to [redacted] million minutes, or [redacted] percent of the total wireless-initiated 8YY intrastate minutes of use by all of Hypercube's paying IXC customers from October 2007 to December 2009.

c. DeltaCom's Reported 100-Percent PIU to Hypercube in Florida Starting in October 2007 Is Not Factually Plausible

30. In October 2007, DeltaCom started reporting a 100-percent PIU to Hypercube. After Hypercube asked for a traffic study from DeltaCom to support the 100-percent reported

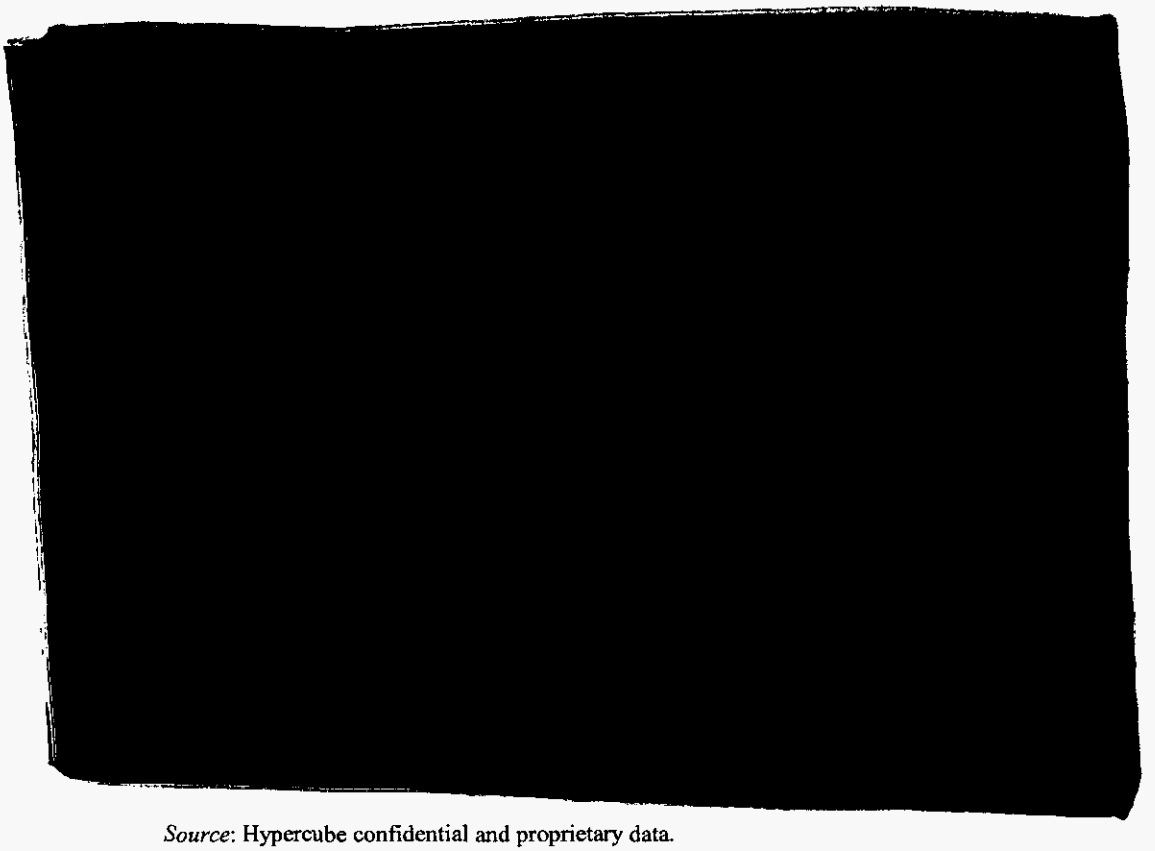
rate—which DeltaCom failed to provide[21]—Hypercube continued to assign the default rate of 50-percent PIU for the wireless-initiated 8YY traffic that Hypercube transported for DeltaCom. To determine whether DeltaCom's reported PIU is plausible, I analyzed proprietary Hypercube call data from April 2005 through December 2009. I found that the 100-percent PIU is not factually plausible by any reasonable assessment.

31. First, I identified DeltaCom's top customers in Florida from April 2005 to December 2009,[22] which I define as the 8YY numbers that consumed the largest number of minutes of use within each month. I pulled DeltaCom's top 10 customers in Florida within each month during the whole sample period and generated a list of 41 unique 8YY numbers as DeltaCom's top customers in Florida. The destinations of those 8YY numbers reveal that DeltaCom's customers were heavily concentrated in banking and Florida state-government agencies. As Figure 6 shows, nearly half of DeltaCom's customer base consisted of government agencies.

21. *Hypercube Answer to First Amended Petition* ¶ 128.

22. Hypercube proprietary 8YY call data in Florida provide daily wireless-originated minutes of use and call counts for each 8YY number that Hypercube transported for each IXC that were originated within Florida. The sample period ranges from April 2005 to December 2009.

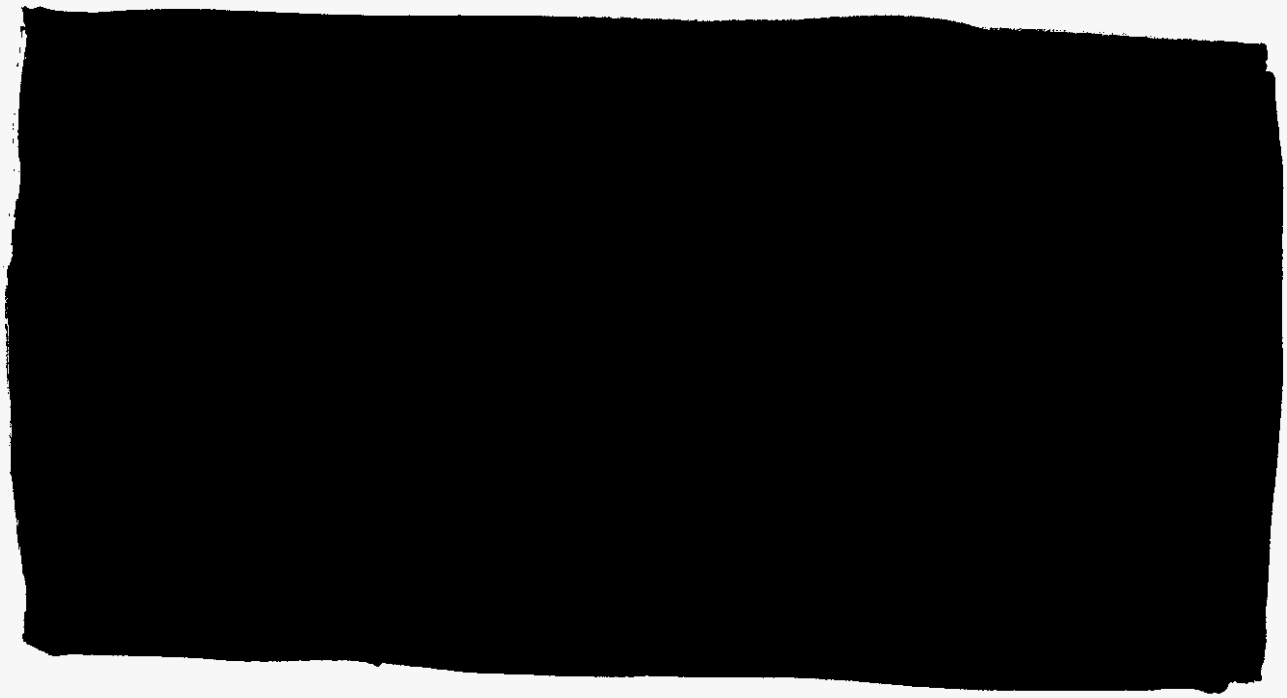
FIGURE 6: BUSINESS CATEGORIES OF DELTACOM'S TOP 10 CUSTOMERS IN FLORIDA, APR. 2005 – DEC. 2009



Source: Hypercube confidential and proprietary data.

32. In Figure 7, I show the new additions to DeltaCom's top ten customers—any top customer within a particular month that did not appear as a top customer in any previous month—in the months before and after October 2007. The additions to DeltaCom's top customers after October 2007, when DeltaCom reported a 100-percent PIU to Hypercube, were even more highly concentrated in government agencies.

FIGURE 7: TYPES OF DELTACOM'S CUSTOMERS THAT ENTERED THE TOP 10 IN FLORIDA, MAY 2005 – DEC. 2009



Source: Hypercube confidential and proprietary data.

33. A major characteristic of government agency customers in terms of call transportation is that the locations of call termination of government agencies are most likely to be in Florida, although private businesses often arrange their call centers in less populated states to obtain lower interstate tariff rates. Thus, it is reasonable to use the wireless-initiated 8YY minutes of use on the 18 numbers identified in Figure 6 and listed in Table 5 as a lower bound for *intrastate* traffic. Table 5 shows the destinations of the 18 8YY numbers that are associated with government agencies located in Florida.

TABLE 5: GOVERNMENT AGENCIES INCLUDED IN DELTACOM'S TOP 10 CUSTOMERS IN FLORIDA, APR. 2005 – DEC. 2009

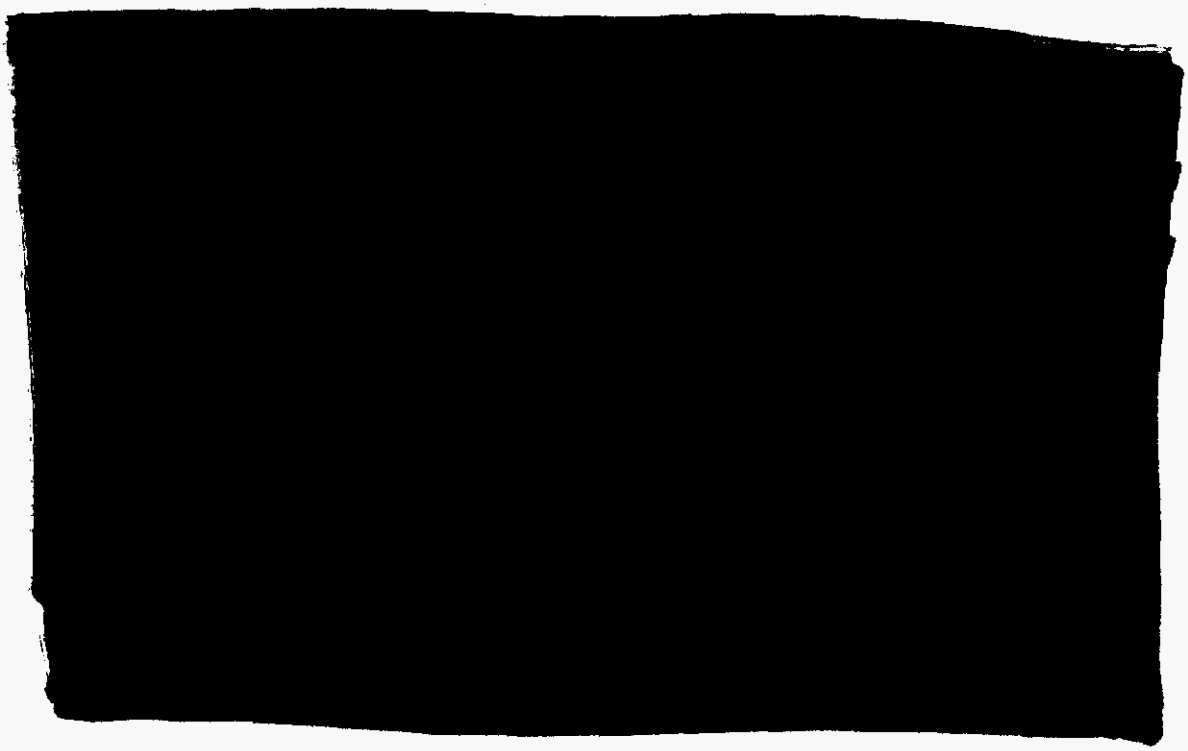
No.	*8YY Number*	*Description*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		

Source: Hypercube confidential and proprietary data.

34. I then aggregated the wireless-initiated 8YY minutes of use on those 18 numbers by state (Florida) and month. Figure 8 shows that over the entire period from April 2005 to December 2009, the minimum percentage of monthly intrastate minutes of use for DeltaCom in Florida—as measured by the traffic transported to the Florida government agencies listed above—ranged from 9 percent to 63 percent. Put differently, at least for those 8YY numbers, the traffic that Hypercube transported for DeltaCom was not all interstate traffic, as DeltaCom's 100-percent PIU rate implies. For October 2007, the minutes of use transported to Florida government agencies corresponds to an upper-bound of at most 49 percent for DeltaCom's PIU. These results indicate that DeltaCom could not plausibly have

had a PIU of 100 percent in any month, including October 2007, because the minutes of intrastate use never fell below 9 percent of the total minutes of use.

FIGURE 8: PERCENTAGES OF 8YY CALL TRAFFIC TRANSPORTED TO GOVERNMENT NUMBERS FOR DELTACOM IN FLORIDA, APR. 2005 – DEC. 2009



Source: Hypercube confidential and proprietary data.

4. The FCC's Earlier Analysis of 8YY Calls from Competitively Supplied Payphones Correctly Articulated the Externality Framework, Useful by Analogy in This Case, That the IXC's 8YY Subscriber Is the Primary Economic Beneficiary and Cost Causer of the Local Access Services Being Consumed

35. The FCC first considered the proper compensation for a carrier originating an 8YY call in a competitive telecommunications market in 1996 in its *Pay Telephone First Report and Order*.[23] That report sought to "establish a plan to ensure fair compensation for

23. The Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, First Report and Order, CC Dkt. No. 96-128, 11 F.C.C. Rcd. 20,541 (1996).

'each and every completed intrastate and interstate call using [a] payphone.'"[24] In addressing the payment to a payphone provider for originating an 8YY call, the FCC considered the argument that, because nearly all telephone customers use payphones at some time, all telephone customers should cover the per-call cost of this service through the monthly subscriber line charge (SLC) on their *own* residential or business lines.[25]

36. In its 1996 order, however, the FCC rejected the assertion that a per-call cost should be passed on to all telephone customers. The agency reasoned that "raising the SLC for this purpose would be contrary to the goals of the Act, because these payments would not be borne by either the *primary economic beneficiary* of payphone calls or the *cost causer.*"[26] The FCC thereby concluded that the facilities-based carrier should pay the payphone service provider (PSP) on a per-call basis, so that the primary economic beneficiary also incurs the costs of toll-free calls. The *Pay Telephone First Report and Order* further noted that this system provides "carriers the broadest latitude on how to recover the costs of payphone compensation, whether through increased rates to all or particular customers, through direct charges to . . . subscriber 800 customers, or through contractual agreements with individual customers."[27]

37. The FCC's economic reasoning applies equally to 8YY calls originating from cell phones: an IXC should remit payments to a CLEC so that the primary economic beneficiary in an 8YY call also incurs the costs it causes. If, instead, a CLEC could not recover its costs from 8YY calls from either the caller or the IXC, then all the CLEC's customers would indirectly bear the costs of these calls either through reduced network

24. *Id.* at 20,543 ¶ 1 (quoting 47 U.S.C. § 276(b)(1)(A)).
25. *Id.* at 20,583 ¶ 81.
26. *Id.* at 20,585 ¶ 85 (emphasis added).
27. *Id.* at 20,704 ¶ 341.

investment or increased costs for other services. Similarly, the indirect costs paid by cell phone users for 8YY service resemble a subscriber "line" charge on wireless access subscriptions because these costs would fall upon customers regardless of whether they use the service that generates them.

5. The Rates That Hypercube Charges Pursuant to Its Price List Legitimately Permit the Partial Recovery of the Costs of Providing Access for 8YY Calls That Are Initiated on Wireless Networks

38. The policy decision to detariff wireless was not a policy decision to frustrate the fair and efficient recovery of the costs of providing access and transport for calls initiated on wireless networks. Hypercube, as a CLEC, is entitled to charge—and collect—the rates it charges pursuant to its price list for its services. By contracting with Hypercube, a CMRS carrier may legitimately transfer to Hypercube some of the burden of delivering an 8YY call to the appropriate IXC. Because Hypercube takes over a portion of the switching and transport functions, some of the costs that the CMRS carrier avoids it otherwise would incur when an 8YY call is initiated on its network. Hypercube performs a legitimate service by routing the call and increasing the efficiency of transport. Hypercube's performance of these functions mitigates the negative externality that arose as an unintended consequence of the compulsory detariffing of CMRS service in 1994.

39. From an economic point of view, DeltaCom should be indifferent to how Hypercube chooses to use or disburse its revenues. DeltaCom characterizes the access fees that Hypercube pays as part of its contractual obligation to a CMRS carrier with which Hypercube has a commercial contract as a "'kick back' of access charges."[28] The *Compact*

28. First Amended Petition of DeltaCom, Inc. for Order Determining DeltaCom, Inc. Not Liable for Access Charges of KMC Data, LLC and Hypercube Telecom, LLC, ¶ 3, *In re* DeltaCom Inc., v. KMC Data LLC and Hypercube Telecom, LLC, Dkt. No. 090327-TP (P.S.C. Fl. Oct. 23, 2009) [hereinafter *DeltaCom First Amended Petition*].

Oxford English Dictionary defines a kickback as "an illicit payment made to someone who has facilitated a transaction or appointment."[29] DeltaCom's pejorative characterization is both inaccurate, given that the Commission has approved Hypercube's rates as just and reasonable, and economically irrelevant.

40. Were Hypercube to distribute its revenues differently—for example, by allocating a certain percentage of the rates it collected pursuant to its price list to charity—DeltaCom would continue to be obligated under Florida public utility law to pay Hypercube's charges for the service that it provides DeltaCom. Moreover, under such circumstances, DeltaCom would have no case for claiming that Hypercube was dealing out unlawful kickbacks. How Hypercube deploys the funds received from the rates that it is entitled to collect pursuant to its price list for the services that it provides has no bearing on the legitimacy of those charges or the legal obligation of DeltaCom to pay them. It therefore seems apparent that DeltaCom's complaint rests on its desire to continue to exploit for its own financial gain—at the expense of network investment and consumer welfare—the externality that has arisen as an unintended consequence of the mandatory detariffing of wireless services.

B. The Federal Communications Commission's Tariff Benchmark System for CLEC Access Rates

41. The FCC's CLEC tariff benchmark system, adopted in 2001 in the *Seventh Report and Order and Further Notice of Proposed Rulemaking* in its reform of access

29. COMPACT OXFORD ENGLISH DICTIONARY, http://www.askoxford.com/?view=uk (emphasis added).

charges imposed by CLECs, is a comprehensive system of tariffing that was designed to embody simplicity and transparency.[30]

1. *Ex Post* Negotiation of Liabilities Owed Pursuant to Approved Tariffs Is Costly and Inefficient

42. The FCC has specified that CLEC access rates conforming to its tariff rules are "presumed to be just and reasonable."[31] During rate negotiations and "if the parties cannot agree, the CLEC must charge the IXC the appropriate benchmark rate."[32] This requirement reduces uncertainty *ex ante*. The upper bound on the rate that an IXC can expect to pay a CLEC with which it has not negotiated an alternative rate is known with certainty to both the IXC and the CLEC. Allowing for the IXC to renegotiate this rate *ex post*, through litigation or the threat of litigation to dispute liability for access services already consumed, would undermine that *ex ante* certainty.

43. Indeed, the FCC adopted the *Seventh Report and Order* in 2001 in large part to reduce costly litigation and its potentially deleterious effect on innovation by CLECs:

> The uncertainty of litigation has created substantial financial uncertainty for parties on both sides of the dispute. This uncertainty, in turn, poses a significant threat to the continued development of local-service competition, and it may dampen CLEC innovation and the development of new product offerings.[33]

Ex post changes to the established rates distort incentives for investment and innovation for both the CLEC *and the IXC* for which the CLEC provides services. The threat of litigation by the IXC creates uncertainty over the return that the CLEC can expect to earn on an investment to expand its network or introduce an innovative service. Consequently, the CLEC will require a higher rate of return for any investment and undertake marginally fewer

30. Access Charge Reform, Reform of Access Charges Imposed by Competitive Local Exchange Carriers, Seventh Report and Order, CC Dkt. No. 96-262, 16 F.C.C. Rcd. 9,923 (2001) [hereinafter *Seventh Report and Order*].
31. *Id.* at 9,925 ¶ 3.
32. *Id.*
33. *Id.* at 9,932 ¶ 23 (citation omitted).

investments overall.[34] At the same time, if the IXC expects to derive the benefit of network investments made by the CLEC without needing to pay the CLEC the opportunity cost of such use, then the IXC will have less incentive to make, or share in, the sunk investments in the complementary network infrastructure that its own services require. This retardation of investment by both the CLEC and the IXC reduces consumer welfare.

2. The Tariff Benchmark System Promulgated Under the *CLEC Access Reform Order* Was Adopted to Reduce Administrative Costs and Promote the Ubiquity and Seamlessness of the Telecommunications Network

44. In the introduction to its *Seventh Report and Order* on CLEC access reform, the FCC stated its intention to "provide a bright line rule that permits a simple determination as to whether CLEC access charges are just and reasonable and, at the same time, will enable both sellers and purchasers of CLEC access services to avail themselves of the convenience of a tariffed service offering."[35] To prevent regulatory arbitrage and to promote competition in the market for CLEC access, the FCC adopted a simple, uniform rate system that consisted of a designated benchmark rate for interstate services. Rates at or below the benchmark are considered reasonable, and rates above it are detariffed.

45. The simplicity of the FCC's tariff benchmark system promotes uniformity among rates and transparency in billing for CLEC access. The comprehensive applicability of the benchmark obviates litigation to determine the reasonableness of individual rates after services have already been supplied and consumed. Given that, "[h]istorically, ILEC access charges have been the product of an extensive regulatory process by which an incumbent's costs are subject to detailed accounting requirements,"[36] the FCC was "reluctant to impose

34. *See, e.g.*, PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, ECONOMICS 425 (16th ed. Irwin McGraw-Hill 1998).
35. *Seventh Report and Order* 16 F.C.C. Rcd. at 9,925 ¶ 4.
36. *Id.* at 9,939 ¶ 41.

similar legacy regulation on new competitive carriers."[37] By imposing, instead, the substantially simpler tariff benchmark system for CLEC access, the FCC sought to reduce administrative costs. Further, the benchmark system reduces transactions costs between CLECs and IXCs because the existence of a presumptively reasonable tariffed access rate clarifies for both parties the potential gains from a privately negotiated access agreement.

46. The FCC's primary goal in establishing the tariff benchmark was to promote ubiquity and seamlessness of the telecommunications network. The FCC feared that stalemated negotiations over the reasonableness of CLEC access rates would increase the possibility that IXCs would terminate relationships with CLECs and block their traffic, thereby significantly reducing the quality of service for consumers.[38] Moreover, the "uncertainty of litigation . . . created substantial financial uncertainty for parties on both sides of the dispute" and "pose[d] a significant threat to the continued development of local service competition."[39] The FCC's CLEC tariff benchmark system therefore serves to protect the quality of service across the nationwide telecommunications network.

3. CLEC Access Rates Within the Safe Harbor Are "Presumptively Reasonable"

47. The tariff benchmark is applicable to all cases involving CLEC tariffed rates but for a single exception for rural CLECs. All CLEC rates within the "safe harbor" established by the FCC's "bright line"[40] rule "will be conclusively presumed to be just and reasonable."[41] Although CLEC rates above the tariff benchmark do not receive the same

37. *Id.*
38. *Id.* at 9,932 ¶ 23 ("In some instances, AT&T has terminated its relationship with CLECs and is blocking traffic, thus raising various consumer and service quality issues.").
39. *Id.*
40. *Id.* at 9,924 ¶ 4.
41. *Id.* at 9,938 ¶ 40.

presumption of reasonableness, CLECs may nonetheless charge rates outside the safe harbor if they enter into private contracts with IXCs.

48. The FCC specifically stated that the benchmark rate applied to "both originating and terminating access charges. . . . *including to toll-free, 8YY traffic.*"[42] In its *Eighth Report and Order* on CLEC access charges in 2004, the FCC further decided to "decline to set a separate access rate for originating 8YY traffic and allow it to be governed by the same declining benchmark as other competitive LEC interstate access traffic."[43] Tariffed CLEC rates for originating interstate 8YY traffic are thus subject to the same presumption of reasonableness as applies to tariffed CLEC rates for other kinds of calls.

49. The FCC established the safe harbor of the tariff benchmark system both to "prevent use of the regulatory process to impose excessive access charges on IXCs and their customers"[44] and "to ensure the ubiquity of a fully interconnected telecommunications network that consumers have come to expect."[45] A comprehensive rate structure promotes coherence and thereby obviates conducting costly adjudications to determine retrospectively the reasonableness of an individual CLEC's rates. As noted above, the solitary exception to the FCC's rate structure is its allowance for higher rates among rural CLECs. That the FCC outlined a single exception to its bright-line rule—and specifically declined to make any other exceptions, including an exception for 8YY traffic[46]—emphasizes its intention to create a unified standard. In expressly refusing to exempt 8YY traffic, the FCC made unambiguous that 8YY traffic is subject to the FCC's comprehensive CLEC rate reform.

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42. *Id.* at 9,946 ¶ 56 (emphasis added).
43. Access Charge Reform, Reform of Access Charges Imposed by Competitive Local Exchange Carriers, Petition of Z-Tel Communications, Inc. for Temporary Waiver of Commission Rule 61.26(d) to Facilitate Deployment of Competitive Service in Certain Metropolitan Statistical Areas, Eighth Report and Order, CC Dkt. No. 96-262, 19 F.C.C. Rcd. 9,108, 9,110 ¶ 1 (2004) [hereinafter *Eighth Report and Order*].
44. *Seventh Report and Order* 16 F.C.C. Rcd. at 9,924 ¶ 2.
45. *Id.* at 9,925 ¶ 6.
46. *Eighth Report and Order* 19 F.C.C. Rcd. at 9,110 ¶ 1.

4. An IXC May Not Refuse Access for CLECs Charging Presumptively Reasonable Rates If It Purchases the Services of Another LEC Within the Same Geographic Area

50. If a CLEC wishes to charge rates above the benchmark, the FCC requires that the CLEC continue to provide access service to IXCs with which it is negotiating rates so as to maintain maximal network connectivity.[47] That is, a CLEC must continue to provide service to an IXC even if the parties are having difficulty agreeing on a mutually acceptable rate.

51. In *AT&T and Sprint Petitions for Declaratory Ruling on CLEC Access Charge Issues*, the FCC also ruled in 2001 that "section 201(a) [of the Communications Act of 1934] prohibits an IXC from refusing to serve the end user of a CLEC charging safe-harbor rates, while serving the customers of other LECs within the same geographic area."[48] The presumptively reasonable rates established by the *Seventh Report and Order* constitute a "reasonable request" for service and therefore invoke, under section 201(a), an obligation on the part of the IXC to accept and pay for traffic.[49] The FCC said that:

> an IXC cannot refuse to exchange originating or terminating traffic with the CLEC [charging presumptively reasonable rates], because such a practice would "threaten to compromise the ubiquity and seamlessness of the nation's telecommunications network" with serious adverse consequences for consumers.[50]

Further, the FCC specified that the IXC must honor "the *entirety* of the request made . . . by the end-user,"[51] meaning that an IXC may not choose to provide service to an end user

47. AT&T and Sprint Petitions for Declaratory Ruling on CLEC Access Charge Issues, 16 F.C.C. Rcd. 19,158, 19,161 ¶ 9 (2001) [hereinafter *2001 AT&T/Sprint Declaratory Ruling*].
48. *Id.*
49. *Id.* at 19,162 ¶ 13.
50. *Id.*at 19,162 ¶ 15 (quoting *Seventh Report and Order* 16 F.C.C. Rcd. at 9,932 ¶ 24).
51. *Id.* at 19,165 ¶ 21 (emphasis in the original).

through "*some carrier*"[52] to satisfy its obligation. Rather, the IXC must provide service to the "*specific*"[53] LEC requested by the end user.

5. The FCC Has Repeatedly Declined to Set Rates for the CLEC's Specific Network Elements

52. In keeping with its stated goal of reducing regulatory complexity, the FCC declined to set specific rates for individual elements of access supplied by CLECs. The FCC expressly stated in its *Seventh Report and Order* that,

> *in contrast to our regulation of incumbent LECs, our benchmark rate for CLEC switched access does not require any particular rate elements or rate structure*; for example, it does not dictate whether a CLEC must use flat-rate charges or per-minute charges, *so long as the composite rate does not exceed the benchmark.*[54]

Not only did the FCC intend to give CLECs flexibility in choosing the rates of their access charges, as long as those charges fell within the safe harbor, it also intended to give them flexibility in the *structure* of their access rate system. The FCC presumes that a CLEC's rates are reasonable, as long as the overall rate falls within the safe harbor that the agency established. The FCC did not intend to apply to competitive LECs the same restrictions that incumbent LECs face. Requiring that CLECs price individual elements at the cost of individual ILEC elements would conflict with the FCC's "reluctan[ce] to impose . . . legacy regulation on new competitive carriers."[55]

53. In its *Eighth Report and Order*, the FCC specifically addressed AT&T's claims that "abuses surrounding competitive LEC-originated 8YY traffic justified immediately capping the access rate for this category of traffic at the rate of the competing incumbent LEC."[56] In particular, AT&T contended that "the competitive LECs incur lower

52. *Id.* at 19, 165 ¶ 20 (emphasis in the original).
53. *Id.* (emphasis in the original).
54. *Seventh Report and Order* 16 F.C.C. Rcd. at 9,946 ¶ 55 (emphasis added).
55. *Id.* at 9,939 ¶ 41.
56. *Eighth Report and Order* 19 F.C.C. Rcd. at 9,946 ¶ 64.

costs when they transport 8YY traffic via dedicated facilities,"[57] and that, therefore, "the appropriate benchmark for competitive LEC access services for outbound 8YY traffic carried over dedicated local access facilities is the incumbent LEC's local end office switching charge."[58] Although AT&T's argument related to 8YY traffic on rural networks, the argument resembles the one that DeltaCom makes with regard to Hypercube's access charges for 8YY calls initiated on wireless networks. The fact that the FCC declined to cap CLEC access rates in the manner that AT&T petitioned—on an element-by-element basis—and instead "permit[ted] competitive LECs to continue to charge the previously established, declining benchmark rate to which other competitive LEC traffic is subject,"[59] definitively indicates that the FCC did not intend to define the reasonableness of CLEC access charges within the safe harbor on the basis of individual elements. Rather, if a CLEC charges a rate that falls on or below the established benchmark, that rate is presumed to be "just and reasonable,"[60] regardless of the element of access to which the rate applies.

6. The FCC Does Not Limit the Applicability of Tariffed Access Charges to Situations in Which CLECs Provide Direct Access to the Calling Party

54. In the *Seventh Report and Order*, the FCC imposed a "market presence" restriction on the eligibility of CLECs to charge tariffed rates. The FCC made the benchmark rate available to CLECs "only *in the markets* where they have operations that are actually serving end-user customers on the effective date of these rules."[61] This stipulation did not limit the ability of intermediate CLECs to charge the benchmark rate. Rather, the FCC employed "end-user" as a broad term that encompasses both indirect and direct connections.

57. *Id.* at 9,142 ¶ 68.
58. *Id.*
59. *Id.* at 9,142 ¶ 69.
60. *Seventh Report and Order* 16 F.C.C. Rcd. at 9,925 ¶ 4.
61. *Id.* at 9,947 ¶ 58 (emphasis added).

Confirmation of this intended meaning can be found in the FCC's statement elsewhere in the *Seventh Report and Order* that CLECs may charge the benchmark only "for those *areas* where they have previously offered service."[62] This restriction clearly is geographic. In no way does it address *how* a CLEC connects with end users.

55. In the *Eighth Report and Order*, the FCC considered and rejected Qwest's argument that the full benchmark rate should not be available for intermediate CLECs—that is, CLECs that do not interconnect directly with end users. The FCC stated that, "because there may be situations when a competitive LEC does not provide the entire connection between the end-user and the IXC, but is nevertheless providing the functional equivalent of the incumbent LEC's interstate exchange access services, we deny Qwest's petition."[63] Nonetheless, to forestall future disputes over CLEC access rates, the FCC adopted a new rule that "the rate that a competitive LEC charges for access components when it is not serving the end-user should be no higher than the rate charged by the competing incumbent LEC for the same functions."[64] The FCC immediately took pains to clarify what this rule did *not* require:

> We note that competitive LECs continue to have flexibility in determining the access rate elements and rate structure for the elements and services they provide consistent with the CLEC Access Reform Order . . . For this reason, we reject concerns expressed by some commenters that this constraint would require competitive LECs to adopt the incumbent LEC rate structure.[65]

The FCC's statement that an intermediate CLEC may be the "functional equivalent" of a directly interconnected CLEC recognizes the necessity of maintaining flexibility in the CLEC rate structure. Pursuant to that goal, the FCC declined to impose a benchmark rate for

62. *Id.* at 9,944 ¶ 51 (emphasis added).
63. *Eighth Report and Order* 19 F.C.C. Rcd. at 9,114 ¶ 13.
64. *Id.* at 9,116 ¶ 17.
65. *Id.* at 9,116 n.58 (citation omitted) (emphasis added).

each element of access, preserving instead the CLEC's right to decide the optimal rate structure based on its particular circumstances.

7. The FCC Recognized that CMRS Carriers May Lawfully Enter into Joint Access Agreements with CLECs Through Private Contracts

56. In its declaratory ruling on CMRS access charges[66] in 2002 and the *Eighth Report and Order* in 2004, the FCC acknowledged that a CMRS carrier may contract with other carriers to recover the costs of network access.[67] In particular, because CMRS carriers operate in a "detariffed, deregulated environment," they are entitled to "arrange whatever compensation arrangement they like for the exchange of traffic."[68] Although the FCC stipulated that a CLEC may not "collect charges on behalf of [a] carrier" with "no independent right to collect from the IXC," it accepted the validity of "jointly provided access services."[69] Moreover, the FCC has never indicated that a CMRS carrier may contract with only one type of service provider. The right of CMRS carriers to contract privately to recover access charges by "whatever compensation arrangement [CMRS carriers] like" is broad.[70] Until the FCC states otherwise, CMRS carriers retain the right to contract with CLECs for the provision of access services.

C. The Florida Public Service Commission's Structure for Regulating the Intrastate Access Charges of CLECs

57. As demonstrated by such cases as *Wiltel Communications v. Verizon New York Inc.*, the FCC's interstate rate regulation is consistent with the rulings of state utility

66. *2002 Sprint PCS/AT&T Corp. Declaratory Ruling* 17 F.C.C. Rcd. at 13,192.
67. This part addresses the Commission's Question 4: "Do payments by Hypercube to wireless carriers violate any state or federal law? What action, if any, should the Commission take with respect to such payment?" *PSC Issue List.*
68. *2002 Sprint PCS/AT&T Corp. Declaratory Ruling* at 13,195 ¶ 7.
69. *Eighth Report and Order* 19 F.C.C. Rcd. at 9,116 ¶ 16.
70. *2002 Sprint PCS/AT&T Corp. Declaratory Ruling* 17 F.C.C. Rcd. at 13,195 ¶ 7.

commissions on intrastate CLEC tariff rates.[71] In *Wiltel*, the New York Public Service Commission (NYPSC) found that WilTel was obligated to pay the tariffed access rates that Verizon charged for carrying calls initiated on WilTel's network that were destined to be terminated at radio telephone utilities (RTU). WilTel argued that Verizon did not originate or terminate the calls itself and that Verizon therefore should not be entitled to charge tariffed rates.[72] In its discussion, the court stated that, "[t]he fundamental issues in this case involve whether Verizon's tariffed rate assessed to the IXC for handling traffic that terminates at a wireless RTU is just and reasonable and being applied properly."[73] The court continued, stating

> Nothing in the record here demonstrates that the rates were not properly implemented consistent with Opinion 98-10. WilTel simply asserts that Verizon cannot charge for a service it does not perform. WilTel's complaint *amounts to a collateral attack on that rate design*. WilTel does not provide any support that the rate design developed pursuant to Opinion No. 98-10 fails to comply with the Public Service Law in some material respect. Because we conclude that the rate at issue complies with Opinion 98-10, granting WilTel's request would require that we alter the balance that was established, which we decline to do.[74]

The court thus denied WilTel's complaint and ruled in favor of Verizon.

58. Similarly, the rates that Hypercube charges pursuant to its price list have been approved by the PSC. Thus they are binding as a matter of Florida public utility law, and DeltaCom is obligated to pay them. As *WilTel* and the previous discussion of the FCC's regulatory framework for CLEC access rates demonstrate, precedent in the telecommunications regulation of both other states and federal law clearly dictate that tariffed rates are presumed to be reasonable. Without a showing that the Commission has somehow erred in approving Hypercube's price list for the tandem-switched access that Hypercube

71. *Wiltel Communications, LLC v. Verizon New York, Inc.*, Case 04-C-1548, 2006 WL 1479507 (N.Y.P.S.C. May 30, 2006).
72. *Id.*
73. *Id.*
74. *Id.* (emphasis added).

provides to DeltaCom and its other carrier customers, DeltaCom has no legal justification for withholding payment of those rates.

III. THE PROBLEM PRESENTED IN THIS CASE GROWS IN SIGNIFICANCE BECAUSE OF THE GROWING DEMAND FOR WIRELESS ACCESS

59. Since 2000, wireless demand has overtaken wireline demand. As wireless minutes of use rise relative to landline minutes of use, the proportion of toll-free traffic initiated on wireless networks will continue to increase. In addition, due to complementary demand, growth in online commerce and Internet banking will continue to stimulate the demand for wireless-initiated toll-free calls. Consequently, growth in the demand of end users to make 8YY calls on wireless networks entails rising costs for wireless carriers, because they are not compensated for carrying 8YY calls.

60. This increase in the amount of unrecovered cost marginally reduces the incentive for wireless carriers to invest to support the growth in wireless demand, all other factors remaining constant. Contractual agreements with CLECs provide wireless carriers a means to recoup the costs associated with carrying 8YY calls by transferring a portion of transport and switching functions to CLECs like Hypercube. It therefore serves the public interest to permit wireless carriers and CLECs to continue to contract for network access for toll-free calls. Such agreements promote efficient incentives for wireless investment.

A. Demand for Wireless Access Has Supplanted Demand for Landline Access in Florida

61. Consumers increasingly view wireless service as a (superior) substitute to wireline access. From 2000 to 2006, the total number of switched access lines supplied by ILECs and CLECs declined 13 percent, from 192.4 million to 167.5 million lines, with

wireless substitution cited as a significant factor.[75] A 2009 National Health Interview Survey reported that 22.7 percent of American households had only wireless phones in the first half of 2009, up from 11.8 percent reported in 2006 and 3.5 percent in 2003.[76] Moreover, the same survey found that 14.7 percent of U.S. homes had landlines in 2009 yet received all or nearly all calls on wireless phones.[77] From 2000 to 2006, telephone wirelines per 100 persons declined from 67.9 to 57.6, while wireless subscribers per 100 persons in the United States increased from 34.5 to 73.4.[78] Figure 9 shows the increase in wireless subscriptions over the number of wirelines.

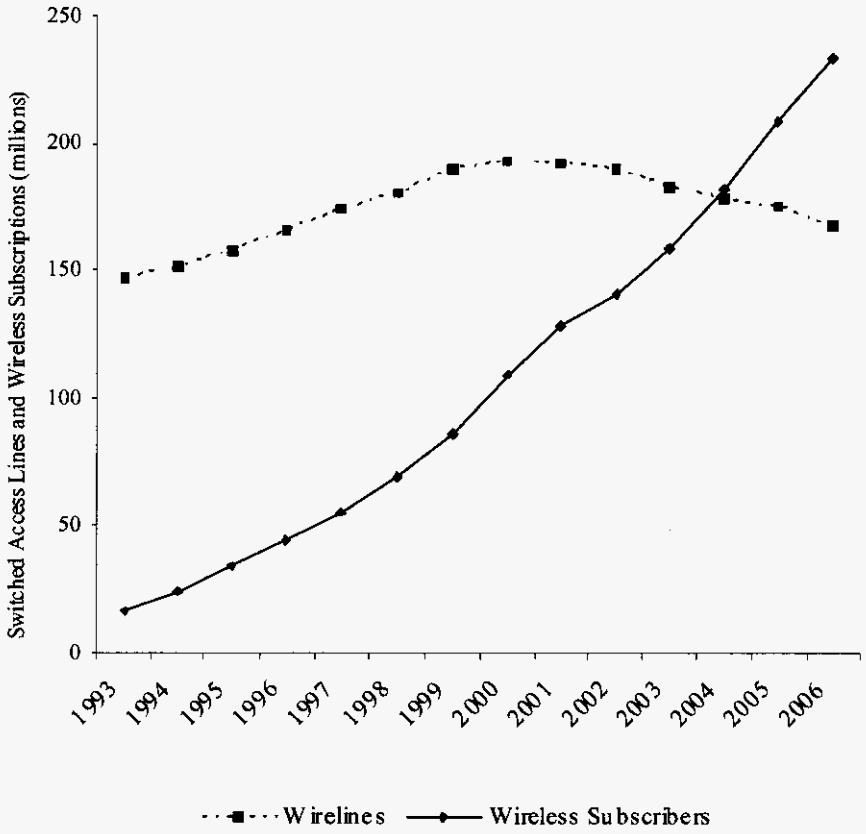
75. FCC, TRENDS IN TELEPHONE SERVICE, at 7-1 & tbl. 7.1 (Aug. 2008), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-284932A1.pdf (last visited May 11, 2010) [hereinafter FCC, TRENDS IN TELEPHONE SERVICE].

76. Stephen J. Blumberg & Julian V. Luke, Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, January-June 2009 1 (Dec. 16, 2009), *available at* http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200912.pdf.

77. *Id.*

78. FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 16.2.

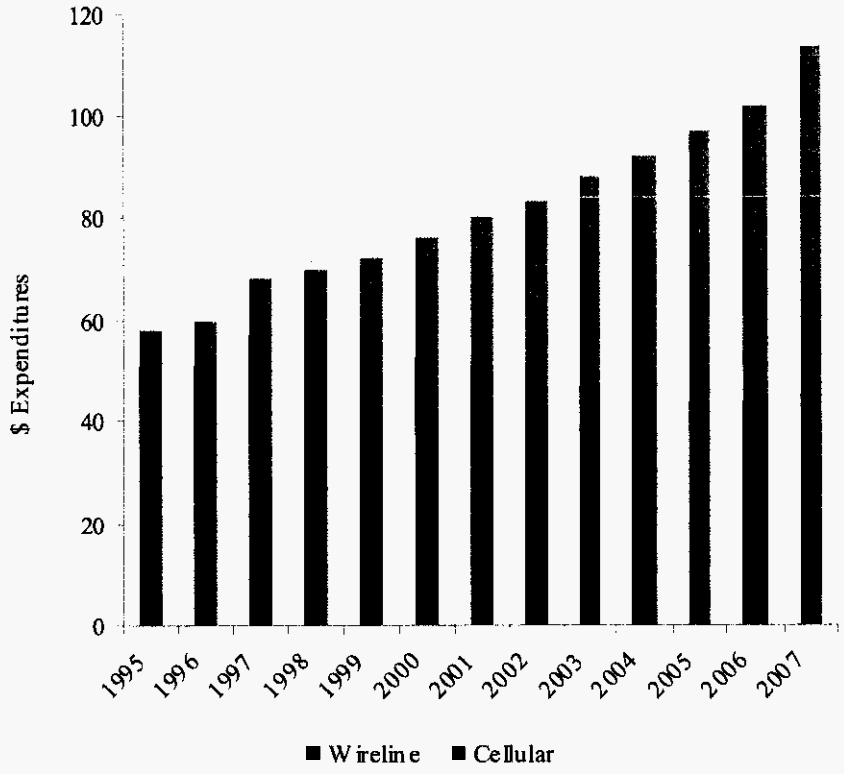
FIGURE 9: WIRELESS SUBSCRIPTIONS VERSUS NUMBER OF SWITCHED ACCESS LINES IN THE UNITED STATES, 1993 – 2007



Source: FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbls. 7.1, 11.1.
Note: Before 1999, the number of wirelines reflected switched access lines for end user customers of ILECs only. Beginning in 1999, the number of wirelines included switched access lines for end user customers of both ILECs and CLECs. In 1999, the proportion of CLEC wirelines was approximately 1.5% that of ILEC wirelines. Before 2005, only carriers with more than 10,000 were included in the data. All carriers were included for 2005, 2006, and 2007.

The rising demand for wireless access relative to wireline access is also evident in the increasing household expenditures for cellular service relative to wireline service expenditures, as shown in Figure 10.

FIGURE 10: AVERAGE MONTHLY HOUSEHOLD EXPENDITURE BY ACCESS PROVIDER TYPE, 1995 – 2007



Source: FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 3.2.

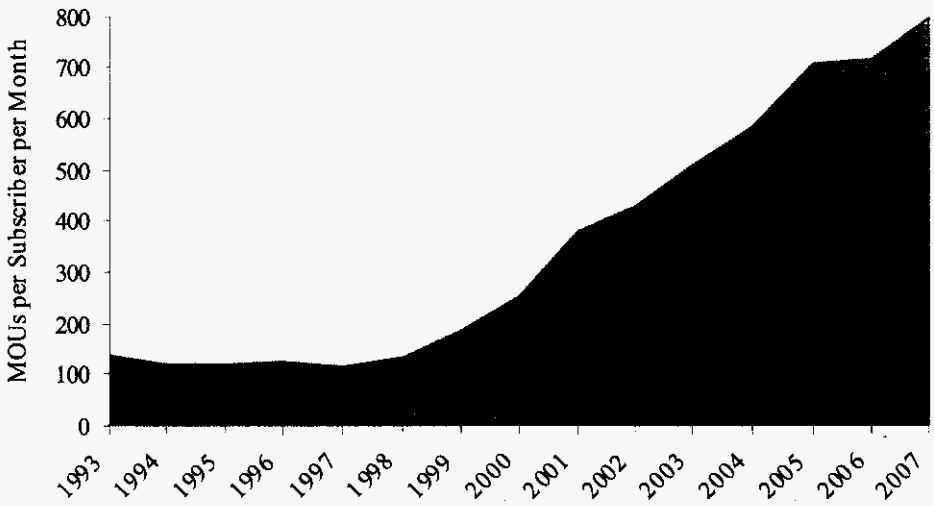
62. Small carriers are a significant factor facilitating wireless demand growth, as the FCC has found that competition among national and regional carriers has led to price reductions.[79] In 2009, national and regional carriers continued to lower prices and turned increasingly to flat-rate plans.[80] The rise in wireless expenditures relative to wireline expenditures shown in Figure 10 above is all the more compelling given that average revenue

79. FCC, Thirteenth Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services 59-60, (Jan. 16, 2009), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-54A1.pdf (last visited May 11, 2010) [hereinafter *FCC Thirteenth CMRS Report*].

80. *See, e.g.*, Roger Cheng, *Sprint Plan Ups Ante in Wireless Market*, WALL ST. J., Sept. 11, 2009, http://online.wsj.com/article/SB125259114965199573.html (small carriers have offered rates of $40 per month for pre-paid phones).

per minute fell from $0.10 in 2003 to $0.06 in 2007.[81] Obviously, minutes of use per wireless subscriber has grown dramatically, as Figure 11 below indicates.

FIGURE 11: U.S. MINUTES OF USE PER WIRELESS SUBSCRIBER PER MONTH, 1993 – 2007



Source: *FCC Thirteenth CMRS Report*, *supra* note 79, tbl. 12.

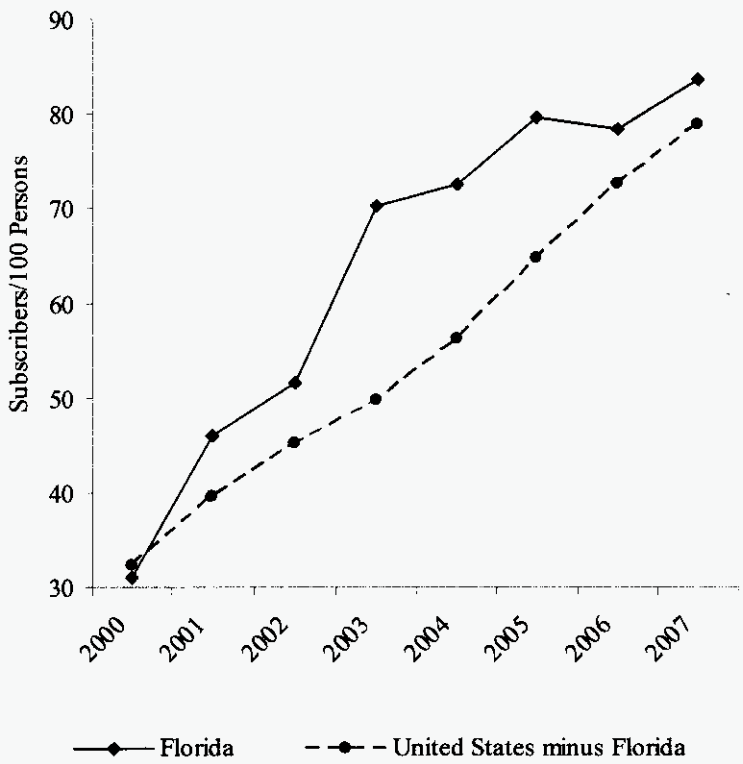
63. In addition to lowering prices, wireless carriers are developing new service offerings to differentiate their pricing plans. Many plans include unlimited texting for a flat monthly rate, tiered pricing for laptop cards and smartphone data plans, and bundled offerings.[82] The growing affordability of wireless service through lowered prices and differential pricing plans stimulates wireless demand.

64. Floridians use wireless access to a relatively greater extent than do consumers in the rest of the United States. Figure 12 shows the growth in Florida of mobile wireless subscribership relative to the growth in subscribership for the rest of the United States. Since 2001, Florida's rate of mobile wireless subscribers per 100 persons has exceeded the

81. *FCC Thirteenth CMRS Report*, *supra* note 79, at 8.
82. *Id.* at 59-65.

nationwide rate and, on average, has grown at a faster rate. Given the trend of wireless substitution, it is all the more important that Florida wireless carriers continue to be permitted to enter into contractual aagreements with Hypercube for the provision of originating access and switching for intrastate toll-free calls.

FIGURE 12: GROWTH IN WIRELESS SUBSCRIBERSHIP IN FLORIDA AND THE REST OF THE UNITED STATES, 2000 – 2007



Sources: FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 11.2 (2007-2008); U.S. Census Bureau, Population Estimates, Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 2000 to July 1, 2008.

65. Application innovation has contributed substantially to wireless demand growth. Apple launched its application store in July 2008 with 500 third-party applications available for download. As of March 2010, Apple's app store included more than 100,000

applications,[83] and the number of downloads had reached three billion.[84] Other wireless carriers quickly responded to the popularity of applications. By the fall of 2009, AT&T, Verizon Wireless, Sprint, T-Mobile, U.S. Cellular, Cellular South, and Cricket all offered affiliated app stores.[85] Beginning in 2008, in conjunction with HTC and T-Mobile, Google began offering phones that ran on its proprietary Android operating system.[86] In January 2010, Google announced the introduction of its branded phone, the Nexus One, which it plans to sell exclusively online.[87] *The Wall Street Journal* reported on January 6, 2010, that Google "believes selling phones directly to consumers online will get mobile devices with more advanced features into the market faster and lower the costs of high-end phones over time."[88] Applications for non-smartphones, known in the industry as feature phones, are also in high demand. GetJar, an applications company offering nearly 60,000 applications for over 2,000 types of phones, reported in January 2010 that consumers downloaded an average of over 50 million applications per month from its website.[89] Clearly, applications significantly contribute to the growing consumer preference for cellular phones over landlines. Wireless carriers will need to continue to work with developers and device manufacturers to support the demand for applications, making investments at the network's core as needed.

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83. Press Release, Apple, Inc., Apple Announces Over 100,000 Apps Now Available on the App Store (Nov. 4, 2009), *available at* http://www.apple.com/pr/library/2009/11/04appstore.html (last visited Mar. 18, 2010).

84. Press Release, Apple, Inc., Apple's App Store Downloads Top Three Billion (Jan. 5, 2010), *available at* http://www.apple.com/pr/library/2010/01/05appstore.html (last visited Mar. 18, 2010).

85. Gerald R. Faulhaber & David J. Farber, *Innovation in the Wireless Ecosystem: A Customer-Centric Framework*, tbl. 1 (Sept. 2009) (comments filed with FCC on behalf of AT&T); Clint Boulton, *T-Mobile to Bill for Google Android Apps, Get Android Market Channel*, EWEEK, Nov. 4, 2009, http://www.eweek.com/c/a/Mobile-and-Wireless/TMobile-to-Bill-For-Google-Android-Apps-Get-Android-Market-Channel-744241/.

86. Jessica E. Vascellaro & Niraj Sheth, *Google Opens New Front in Smart Phone War*, WALL ST. J., Jan. 6, 2010, at B1.

87. *Id.*

88. *Id.*

89. Jenna Wortham, *Giving Your Phone More Oomph*, N.Y. TIMES, Jan. 4, 2010, at B4.

66. To satisfy the rapid growth in wireless demand and in the use of bandwidth-intensive applications, CMRS providers must develop innovative ways to use the limited spectrum allocated to mobile telephony. Consequently, innovation at the core of the network necessarily includes investments to increase spectral efficiency.[90] Since the introduction of 3G service in early 2000, wireless carriers have invested billions of dollars to increase spectral efficiency. In 2008 alone, U.S. wireless carriers reported incremental capital expenditures in their networks of $20.17 billion.[91] In 2009, carriers reported making investments of $19.5 billion—despite the economic crisis.[92] Even as carriers upgrade their 3G networks, they are already investing to develop and deploy 4G LTE networks.[93] Next-generation network investment is not limited to national carriers. Regional wireless carriers Cricket Communications and Metro PCS—both of which provide wireless service in Florida—have announced plans to develop 4G LTE technology by 2010.[94] Wireless carriers' heavy investment devoted to upgrading the spectral efficiency of their core networks reflects the extent of the expected demand growth for wireless. Network-access agreements with CLECs give wireless carriers an additional revenue stream with which to fund these investments in their networks.

90. Faulhaber & Farber, *supra* note 85, at 9.

91. *See* Comments of CTIA—The Wireless Association, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Wireless Services, WT Dkt. No. 09-66, at 13 (filed with the FCC June 15, 2009).

92. *See* Comments of CTIA—The Wireless Association, In the Matters of Preserving the Open Internet and Broadband Industry Practices, GN Dkt. No. 09-191, WC Dkt. No. 07-52, at 7 (filed with the FCC Jan. 14, 2010).

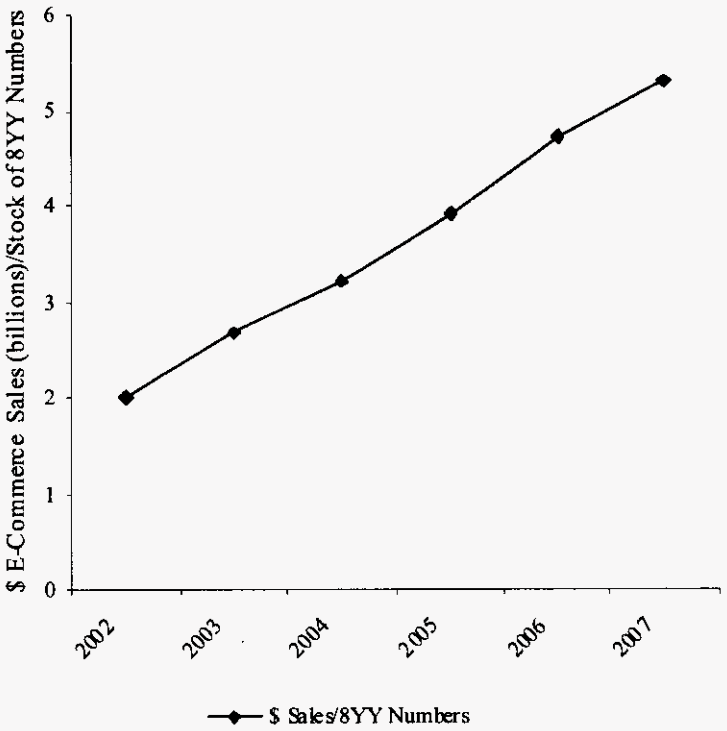
93. Faulhaber & Farber, *supra* note 85, at 9.

94. Press Release, MetroPCS, Unlimited Wireless Carrier MetroPCS Announces Vendors for 2010 4G LTE Launch (Sept. 15, 2009), http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1331809&highlight=.

B. The Significance of the Growth in Online Commerce and Internet Banking

67. Over the past decade, online commerce in the United States has grown dramatically. It appears likely that the growth in online retail trading has stimulated growth in toll-free calls. Online shoppers call 8YY numbers to make customer inquiries and make purchases, whereas bricks-and-mortar shoppers pose inquiries to, and make purchases from, customer service agents in stores. Moreover, with regard to shopping online on mobile phones, the development of mobile broadband has made it easy for the wireless end user to dial 8YY numbers by simply clicking hyperlinks on his or her handset screen. This functionality is offered on websites through retailers such as The Gap, Safeway, Kmart, and Best Buy. On an Apple iPhone, a visitor to the UPS website can simply touch the hyperlink to 1-800-PICK-UPS to call a customer service representative to schedule a package pickup. The economic value of an 8YY number to a retailer encompasses more than simply sales. Retailers use toll-free numbers for all phases of business, including product servicing, billing, and customer service. Figure 13 shows the increasing value of 8YY numbers as e-commerce sales increase.

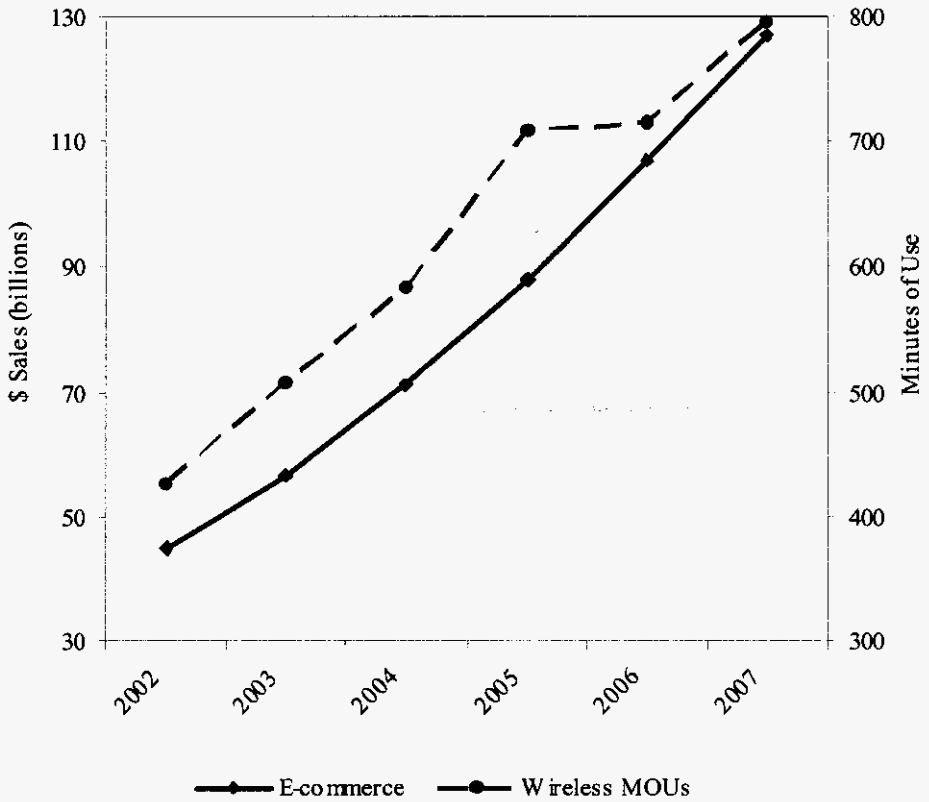
FIGURE 13: VOLUME OF ONLINE COMMERCE RELATIVE TO THE STOCK OF 8YY NUMBERS, 2002 – 2007



Source: U.S. Census Bureau, Table 5/Historical U.S. Retail Trade Sales - Total and E-commerce: 2002-2007 (2007), *available at* http://www.census.gov/econ/estats/2007/historical/2007ht.html; FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 18.3.

Thus, the number of 8YY calls originating on cellular phones has likely risen, and is likely to continue to rise, with the growth of online commerce—because online commerce and toll-free calling are complementary, and because Americans are increasingly substituting cellular phones for landlines. As Figure 14 shows, both wireless minutes of use and e-commerce sales roughly doubled over the five-year period from 2002 to 2007.

FIGURE 14: GROWTH IN WIRELESS MINUTES OF USE AND ONLINE COMMERCE, 2002 – 2007



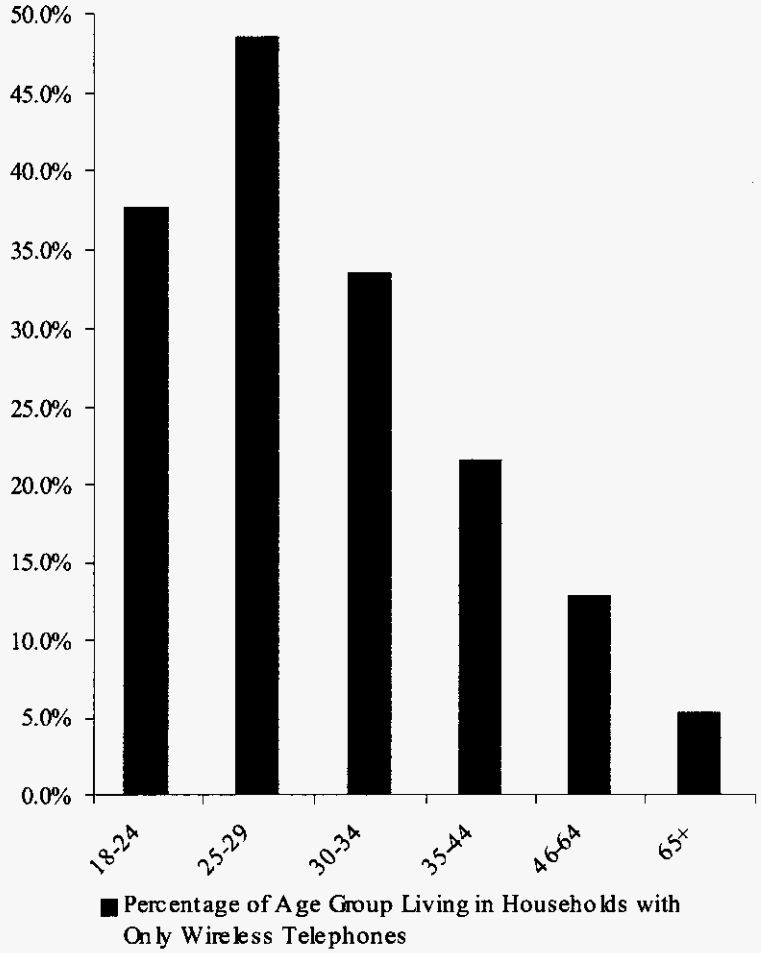
Sources: *FCC Thirteenth CMRS Report*, *supra* note 79, tbl. 12; U.S. Census Bureau, Table 5/Historical U.S. Retail Trade Sales - Total and E-commerce: 2002-2007 (2007), *available at* http://www.census.gov/econ/estats/2007/historical/2007ht.html.

68. Another area of significant innovation driving the demand for wireless-initiated 8YY minutes of use is the increasingly ubiquitous use of Internet banking. Consumers can check account balances, pay bills, and transfer funds all from the convenience of a computer, rather than having to go to the bank's physical location. The growth in Internet banking has concomitantly fostered a greater demand for 8YY minutes of use, particularly to handle customer service issues. As I show in Part D, the increasing demand for wireless-initiated minutes of use for 8YY numbers associated with banks is confirmed by the growth of DeltaCom's and other IXCs' traffic in Florida.

69. The age demographics driving wireless substitution, Internet banking, and online commerce growth are also similar. The 2009 National Health Interview Survey reported that the percentage of adults living without landlines is higher for those younger than 35 years than for those older than 35 years of age. Demographic data indicate that 48.5 percent of adults aged 25-29, 37.6 percent of adults aged 18-24, and 33.5 percent of adults aged 30-34 live in households with only wireless telephones.[95] Figure 15 shows the number of wireless only households separated by age group.

95. Blumberg & Luke, *supra* note 76, at 3.

FIGURE 15: HOUSEHOLDS WITH ONLY WIRELESS TELEPHONES BY AGE GROUP, JAN. 2009 – JUNE 2009



Source: Blumberg & Luke, *supra* note 76, tbl.2.

70. Similarly, according to a 2009 Pew Research Center report, 84 percent of the "Generation Y" population—adults aged 18-32—use the Internet to research products.[96] Businesses commonly use toll-free numbers for customer service calls.[97] Thus, as consumers having only wireless phones allocate more of their product research and shopping to online

96. Sydney Jones, *Generations Online in 2009*, PEW RESEARCH CENTER PUBLICATIONS, Jan. 28, 2009, *available at* http://pewresearch.org/pubs/1093/generations-online.

97. *See, e.g.*, FCC Consumer Facts, What Is a Toll-Free Number and How Does It Work?, http://www.fcc.gov/cgb/consumerfacts/tollfree.pdf.

retailers, the proportion of 8YY calls originating on cellular phones will necessarily increase relative to 8YY calls originating on landlines.

71. The average duration of toll-free calls also exceeds that of non-toll-free calls made on cellular phones. According to FCC statistics, the average duration of all intrastate residential wireless calls in the United States in 2007 was 3.3 minutes.[98] Over 70 percent of intrastate residential wireless calls lasted for two or fewer minutes, and 49 percent lasted for less than one minute.[99] Because it is common for a caller to spend some minutes on hold during a toll-free call, particularly with respect to customer service inquiries, it is plausible—if not likely—that the average duration of toll-free calls exceeds that of non-8YY calls. As noted earlier, the average call duration for all wireless-initiated 8YY calls on Hypercube's network is 3.5 minutes.

72. Thus, the growth in online commerce and in wireless 8YY calls implies that, holding all other factors constant, such calls will increasingly strain the spectral capacity of wireless carriers. Because wireless carriers are not entitled to compensation based on tariffed rates for carrying these calls, they will incur an increasingly higher opportunity cost for using their limited spectrum to carry 8YY calls. If a wireless carrier becomes capacity-constrained with respect to its spectrum, then the origination of an 8YY call will cause the carrier to forgo the revenue from carrying a non-8YY call. As 8YY calls consume more spectrum, a contract between a CLEC such as Hypercube and a wireless carrier will become all the more valuable to a wireless carrier as a means to avoid the cost of transporting those calls beyond its own switch.

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98. The FCC included only outgoing, itemized calls in tabulating the duration of residential wireless calls. FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 11.5.

99. *Id.*

C. The Significance of the Growth in Mobile Broadband

73. One implication of more mobile subscribers having broadband speeds is that they can more easily make 8YY calls. As noted earlier, a retailer, bank, or government agency can link to its 8YY number on a webpage or in an email. Moreover, the ability to search the Internet from one's cell phone increases the ease with which the wireless subscriber can retrieve (and hence call) the 8YY number for a business or government agency or nonprofit organization. In this respect, both the wireless end user's demand and the 8YY subscriber's demand for 8YY service are complementary to the end user's consumption of mobile broadband service. In short, every action that private firms or government officials take to stimulate the adoption of mobile broadband will have the ancillary effect of increasing the value of, and demand for, 8YY service.

D. The Growing Demand for Wireless-Initiated 8YY Traffic Is Evident in DeltaCom's and Other IXC's Consumption of Hypercube's Transportation to the Large 8YY Customers in Florida

74. From Hypercube proprietary call database, I identified DeltaCom's top ten customers for each month within the sample period spanning April 2005 to December 2009. Those 8YY numbers are associated with government agencies including [redacted] further retrieved 22 unique 8YY numbers serving those customers from both Hypercube proprietary call data and public sources such as the websites of those organizations. Table 6 lists those 8YY numbers and the destinations. Those numbers were transported to both DeltaCom and other IXCs in Florida.

100. [redacted]

TABLE 6: LARGE CUSTOMERS THAT HYPERCUBE SERVED TO TRANSPORT WIRELESS-INITIATED 8YY TRAFFIC IN FLORIDA, APR. 2005 – DEC. 2009

Rank	*8YY Number*	*8YY Customer*
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Source: Hypercube confidential and proprietary data;

In Figure 16, I show the aggregated wireless-initiated traffic that Hypercube transported to those numbers in Florida for DeltaCom and for all other IXCs.

FIGURE 16: THE GROWING DEMAND FOR WIRELESS-INITIATED 8YY TRAFFIC TRANSPORTED TO THE LARGE 8YY CUSTOMERS IN FLORIDA BY HYPERCUBE, APR. 2005 – DEC. 2009

Source: Hypercube confidential and proprietary data.

Figure 16 shows that the demand for wireless-initiated 8YY minutes of use for banks and for state-government agencies increased dramatically from April 2008 through December 2009. It is likely that the rise in minutes of use directed toward agencies [redacted] have increased in large part due to the recent recession. Similarly, the growth in traffic to [redacted] likely has multiplied due to the recent recession, with consumers likely having greater demand for [redacted] services given the financial uncertainty of the past two years.

75. The growth of demand shown in Figure 16 is also consistent with the results of Part II.A.3 (see Figure 2, for example). The growth in demand for wireless minutes of use for this subset of 8YY customers, as well as the overall growth in demand across all IXCs for wireless-initiated 8YY minutes of use in Florida shown in Figure 2, means that wireless carriers increasingly need to be able to recover the costs of delivering those calls. Without the ability to reduce the costs of switching, transport, and the database dip through contracts with carriers such as Hypercube, CMRS carriers would have a reduced incentive to invest in their networks, and consumer welfare would decline as a result.

E. Summary

76. The growth in the demand for wireless and mobile broadband, as well as the dramatic increase in e-commerce sales and the popularization of Internet banking imply that the demand of end users to make toll-free calls over wireless networks is increasing. The economic significance of a CMRS carrier's inability to recover its costs for delivering an 8YY call therefore increases concomitantly. Further, as wireless spectrum becomes scarcer, the opportunity cost of delivering an 8YY call for which a CMRS carrier cannot recover the costs of delivery will continue to increase as the demand for wireless increases.

IV. THE TWO-SIDED NATURE OF DEMAND IN TELECOMMUNICATIONS NETWORKS AND THE ECONOMIC CHARACTERISTICS OF 8YY CALLS

77. The demand for 8YY calling is two-sided: it consists of the summation of the demand on the part of end users, who call 8YY numbers, and the demand on the part of 8YY subscribers, which benefit from receiving end users' calls. As a result of the multisided nature of demand for 8YY calls, microeconomic theory indicates that efficient pricing of 8YY calls occurs when the party exhibiting the less price-elastic demand pays a price that deviates by a larger proportion from the marginal cost of access. Additionally, a survey of the

economic characteristics of the 8YY market over time indicates that the demand for 8YY subscription is strong and has grown over the last decade.

A. Two-Sided Demand and the Recovery of the Cost of Network Access

78. The demand for 8YY service, like the demand for most telecommunications services, is multi-sided. Both 8YY subscribers and wireless end users benefit from, and thus have complementary demand for, the use of 8YY service.[101] In a multi-sided market, two (or more) groups of consumers display a willingness to pay for the same service. The division of the costs of producing that service that will maximize aggregate consumer welfare depends on the own-price elasticity of demand for each group of consumers. Common sense and anecdotal evidence imply that 8YY subscribers have a significantly greater willingness to pay for 8YY service than do wireless callers. After all, the defining characteristic of 8YY service is that the caller pays a price of zero to make the call. Consequently, it is appropriate on economic grounds that the majority of the sunk costs required for 8YY service call fall on 8YY subscribers and the IXCs supplying them.

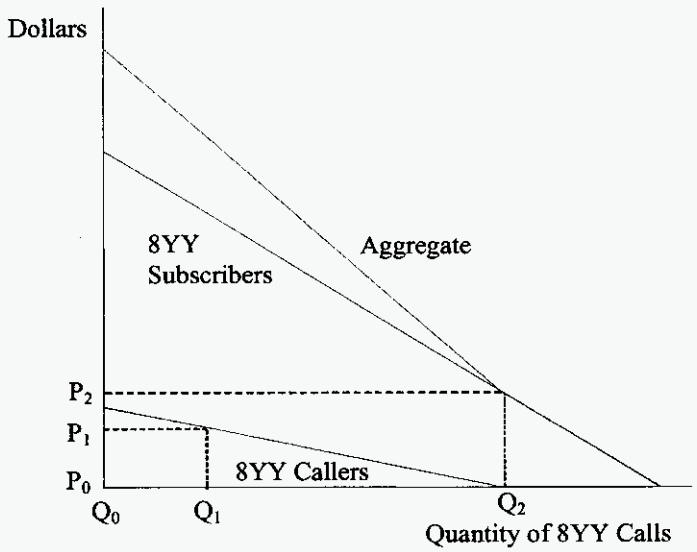
1. The Two Sides of Demand for 8YY Calls: Wireless Customers and 8YY Subscribers

79. When a consumer uses an 8YY number to place an order with The Gap, the call is valued by both the user, who is able to make a purchase at his convenience, and by The Gap, which earns retail revenues. Both sides of the market exhibit positive demand for 8YY service, and both sides are therefore willing to pay a positive price. The same principle applies to specific network features, such as the delivery of an 8YY call using tandem switching, through carriers such as Hypercube. If the quality of a call, either through reduced

101. For a survey of two-sided demand, see David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms*, 3 COMPETITION POL'Y INT'L 151 (2007). The complexities of two-sided markets were first analyzed by William F. Baxter, *Bank Exchange of Transactional Paper: Legal and Economic Perspectives*, 26 J.L. & ECON. 541 (1983).

connection times or through reduced risk of service interruption, would improve from more efficient transport through tandem switching, then both the user (who enjoys faster and more reliable call connection) and the 8YY subscriber (who, as a result of the improved consumer experience, benefits from increased demand for its product) are willing to pay for this service. Figure 17 depicts the demand for more efficient delivery of 8YY calls as a result of tandem switching.

FIGURE 17: THE MULTI-SIDED DEMAND FOR 8YY CALLS



80. By choosing to provide 8YY service, the subscriber demonstrates that its willingness to pay for the call exceeds that of the caller. Because the 8YY caller expects to incur no costs for these calls, he or she will place Q_2 calls. The 8YY subscriber will expect to receive Q_2 calls, and thus signals that its willingness to pay for this number of calls equals or exceeds the rate that the IXC charges.

81. If DeltaCom were permitted to withhold payment from Hypercube for its tandem switching services, then wireless end users would indirectly be forced to pay for the improved quality of 8YY calls. Although Hypercube and the wireless companies cannot

directly bill 8YY callers for the cost that they incur, this cost if not recouped from DeltaCom would be passed onto the 8YY callers in other forms, such as lower quality calls or higher monthly fees. The 8YY callers would effectively pay price P_1 and then would purchase a lower quantity of 8YY calls, Q_1. If the 8YY subscriber instead were allowed to pay the full costs of the call—that is, rather than forcing Hypercube to pass on its cost to 8YY callers indirectly—then Hypercube could recoup its cost from the 8YY subscribers (through DeltaCom). Then a higher quantity, Q_2, of 8YY traffic would be purchased, which would result in a larger consumer benefit for both 8YY callers and subscribers.

82. Moreover, 8YY subscribers are better suited to pay for efficient tandem-switched delivery than are wireless end users. First, 8YY subscribers pay for the 8YY calls on the basis of the total number of minutes used. Because carriers cannot bill 8YY callers for the cost of each call, the indirect means through which the carriers must attempt to recoup these costs will prevent proper price signals and may distort the markets in which the carrier recoups these costs.

83. Second, Ramsey pricing indicates that the degree to which price deviates from marginal cost for products sharing common cost should be inversely related to each product's own-price elasticity of demand.[102] In the context of two-sided demand, the demand on each side of the market is analogous to a separate product for purposes of the Ramsey pricing analysis. If 8YY subscribers are less price-sensitive than 8YY callers, then it is optimal to charge 8YY subscribers a higher share of the common cost for tandem-switched delivery. Allowing 8YY subscribers to pay for service will help contribute to covering the sunk costs borne by carriers, thus increasing incentives to innovate and invest.

102. *See, e.g.*, HARVEY ROSEN, PUBLIC FINANCE 334 (McGraw-Hill Irwin 7th ed. 2005).

2. The Consumer Welfare Gains from Price Reductions Made Possible by Contractual Arrangements between CLECs and Wireless Carriers

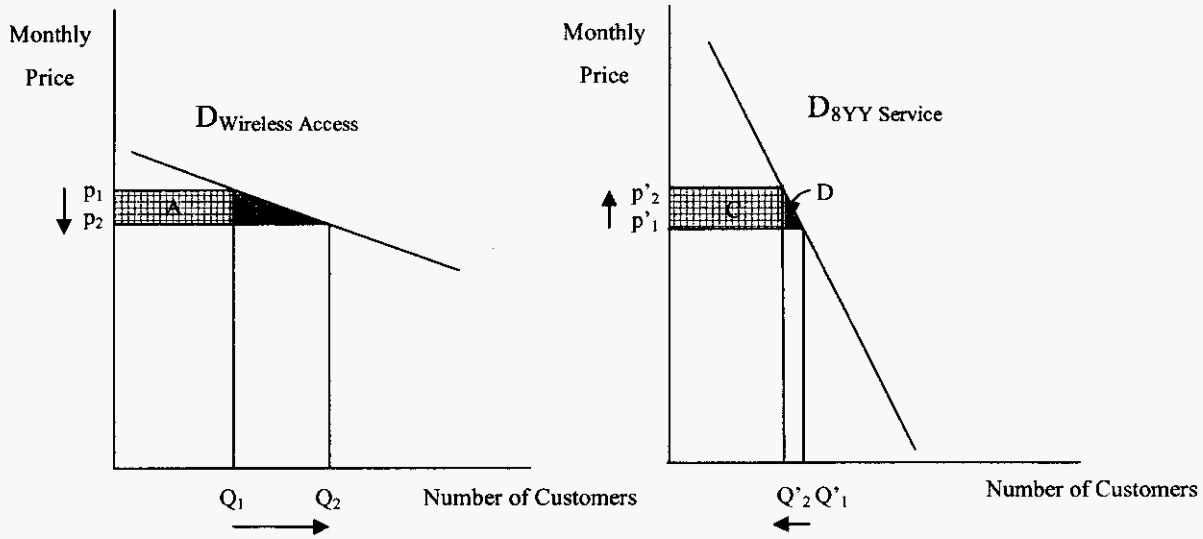
84. Consumers' price elasticity of demand represents their willingness to pay for a given product as price, income, or other relevant variables change. In an empirical study using data from 1999 to 2001, I found that the own-price elasticity of demand for wireless services is between -1.12 and -1.29.[103]

85. The demand curve of end users for wireless access is likely to be more own-price elastic than is the demand curve of the 8YY subscribers. One obvious reason why is the fact that 8YY calls benefit the subscriber in that they directly generate revenue (as in the case of a retail purchase) or facilitate the valuable exchange of information from potential customers. Another reason why wireless end users most likely have a higher own-price elasticity of demand than do 8YY subscribers is that wireless end users initiate 8YY calls. It is generally believed in telecommunications economics that the demand for originating access is more price-elastic than the demand for terminating access. In the context of 8YY calls initiated on wireless networks, the calling party (a wireless end user) faces significantly more choices in placing a toll-free call than does the 8YY subscriber in receiving it. The caller can choose how, when, and where to initiate a call. Furthermore, there are more substitutes for wireless calls: wireline, text message, email, and so forth. In contrast, the receiving party of a call may generally decide little more than whether to answer the call. Outside the context of 8YY calls, the norm is that there is no marginal charge to answer a call. Put differently, the price of terminating access is embedded in the called party's monthly

103. Allan T. Ingraham & J. Gregory Sidak, *Do State Tax Wireless Services Inefficiently? Evidence on the Price Elasticity of Demand*, 24 VA. TAX REV. 249, 257 (2004).

subscription for access.[104] Figure 18 depicts these demand characteristics in graphical terms: the demand curve of end users for wireless access is relatively flat, and the demand curve of 8YY subscribers for toll-free service is relatively steep.

FIGURE 18: OWN-PRICE ELASTICITY OF DEMAND FOR WIRELESS ACCESS AND FOR 8YY SERVICE



(a) Elasticity of Wireless Access (b) Elasticity of 8YY Service

86. If DeltaCom would pay Hypercube for the service that it has supplied to DeltaCom pursuant to its price list, the wireless carriers that use Hypercube would be able to charge a marginally lower monthly price to their end users up to the amount of revenues received from their contracts with Hypercube. Hypercube's cost of carrying the 8YY call from the MTSO to the ILEC en route to DeltaCom's switch would then be transferred to the

104. Empirical research has shown that the price of incoming calls was not an important factor influencing the mobile owner's choice of network. In other words, studies have shown that the demand for network access is more inelastic than the demand for usage. For example, the United Kingdom's Office of Telecommunications (Oftel) found that the choice of handset and the price of outgoing service—rather than the price of receiving calls—were the two most important factors when choosing a network. *See* OFTEL, REVIEW OF THE CHARGE CONTROL ON CALLS TO MOBILES 5 (Sept. 26, 2001), *available at* http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/ctm0901.pdf. Consequently, firms compete for terminating calls only by competing for the customers of the terminating party. *See* Julian Wright, *Access Pricing Under Competition: An Application to Cellular Networks*, 50 J. INDUS. ECON. 290 (2002).

8YY subscribers through the repricing of that service by DeltaCom. In Figure 18 (a), the initial current price of wireless access is p_1. DeltaCom's payment to Hypercube would enable the wireless carrier with which Hypercube has a network-access arrangement to reduce price to p_2. Corresponding to the price change, the number of wireless customers would increase from Q_1 to Q_2.

87. Because only wireless access demand and 8YY service demand are discussed here, for simplicity I assume that the contract allows the wireless carriers to avoid all the costs of tandem switching performed by Hypercube, which is the case of direct interconnection between IXC and the calling party's carrier.[105] Then the shaded area *A* represents the cost of local access, data query, and tandem switching of the 8YY calls originating on a wireless network. The consumer welfare gain for wireless end users from the marginal price change can be decomposed into two parts: (1) savings from lower prices for existing, inframarginal wireless customers, represented by area *A*, and (2) surplus to marginal wireless customers who would not purchase wireless access otherwise, represented by area *B*.

88. By transferring the cost of network access for wireless-initiated 8YY calls—shaded area *A*—to 8YY subscribers, the price of 8YY service would marginally increase from p'_1 to p'_2 and the number of 8YY subscribers would marginally decrease from Q'_1 to Q'_2 as shown in Figure 18 (b). Because of the assumption that almost all the costs incurred by Hypercube to transport the call would now pass through to 8YY subscribers, this change would imply that area *C* is equal to area *A*. Thus, the consumer welfare loss from the price change would equal to the shaded area *C* plus area *D*. However, the fact that the demand curve for 8YY service is steeper than the demand curve for wireless access implies that the

105. Hypercube Ex Parte Presentation 2, in Re: Notice of Ex Parte, CC Dkts. Nos. 01-92 and 96-262, at 7 (Nov. 19, 2009) [hereinafter *Hypercube Ex Parte Presentation*].

magnitude of the decrease in 8YY customers would be smaller than the magnitude of the corresponding increase in wireless customers. Moreover, the welfare gain of wireless customers (area *A* plus area *B*) would exceed the welfare loss of the 8YY customers (area *C* plus area *D*). Thus, the net consumer welfare gain (area *B* minus area *D*) would be positive. Consumers (of wireless access and of 8YY services) would, on balance, be better off.

89. By the mechanism shown in Figure 18, social welfare would improve by allowing the contractual arrangement between CLECs and wireless carriers, because IXCs have the ability to pay the CLECs for providing the services that the IXCs are consuming. The welfare gain is a result of the different nature of the demand curves—the different willingnesses to pay—of wireless end users and 8YY number subscribers. For these reasons, if DeltaCom were allowed to withhold payment to Hypercube for its provision of access services to DeltaCom, consumer welfare would suffer in Florida.

3. The Consumer Welfare Loss If Hypercube Exits the Business of Transporting 8YY Calls from Wireless End Users to DeltaCom

90. If DeltaCom were allowed to withhold payment on the access services supplied by Hypercube pursuant to its price list, one possible outcome would be that Hypercube would be forced to exit the business of transporting 8YY calls from wireless networks to IXCs in Florida. But that outcome would not be the end of the story for wireless carriers and wireless end users. Because a wireless carrier is a common carrier, it has the legal obligation to transport 8YY calls originating on its network to the proper IXC's switch. Wireless carriers have no right to opt out of common carrier requirements with respect to the transmission and delivery of 8YY calls.

91. Consequently, the wireless carrier would need to increase the prices for all its customers to recover its cost of carrying the 8YY calls. Moreover, the subset of end users

who do not make 8YY calls would be forced to subsidize the end users who do. There is no coherent economic reason why wireless subscribers who do not use toll-free numbers should be the appropriate funders of a subsidy for those who do. If DeltaCom were permitted to withhold payment, the marginal consumers of wireless services—that is, the last consumers to subscribe to the service at the current prices—would be excluded from the market. The inframarginal consumers would pay more to consume the same product. Overall, consumer welfare would fall. However, if DeltaCom instead paid the costs of 8YY access by paying Hypercube and then passed those costs onto its 8YY subscribers, DeltaCom's 8YY subscribers would have the option of passing those costs onto the customers that use those subscribers' toll-free number to order services, thereby correcting the negative externality by imposing the costs of 8YY access on the subset of wireless customers who actually use it.

B. The Economic Characteristics of Toll-Free 8YY Calls

92. In this section, I examine both the benefits associated with 8YY calls and the costs of providing them. Like all telecommunication services, 8YY calls benefit two different groups of consumers—the calling party and the called party. These benefits increase with the number of individual who use 8YY numbers and the availability of these numbers. Although consumers typically view toll-free calls as free, the caller's carrier still performs a service for which it incurs costs. The failure properly to account for these costs can induce inefficient investment by telecommunication providers and inefficiently excessive consumption of 8YY calls.

1. The Consumer Welfare Benefits of 8YY Calling Access

93. Both callers and 8YY subscribers benefit from the availability of 8YY calls. Retailers use 8YY numbers to attract potential buyers to place orders and to address customer concerns. Subscription services provide 8YY numbers to enhance customer service and thus

to retain customers. Government organizations circulate 8YY numbers to encourage citizens to contact them. In particular, vanity numbers—which spell a distinctive word or phrase, such as 1-888-CALL FCC (to reach the Federal Communications Commission)—allow companies to offer consumers a mnemonic for contacting them that is both easily remembered and free.

94. A significant source of value, which is often ignored, are the positive network effects that accumulate to a telecommunications network as it grows in size and diversity.[106] In particular, the benefit that an 8YY subscriber receives from owning an 8YY line increases with the number of individuals who can contact that number. Some mobile phone calls cannot reach toll-free numbers that exceed ten digits (for example, 1-800-FIDELITY), which limits the value of these numbers.[107] The magnitude of positive network effects depends on the amount of network use, as well as the number of users. All else being equal, policies that increase the number of individuals placing 8YY calls should be encouraged.

95. The number of 8YY numbers grew significantly from 1993 to 2007, the most recent year for which FCC data are available. This growth has benefitted both consumers, who can now access the additional numbers without charge, and subscribers, whose choices to obtain a toll-free number demonstrate the economic benefit that they expected to receive from its use. In 1993, there existed 3.16 million working toll-free numbers; by 2007, the number had increased more than sevenfold to 23.90 million.[108] Figure 19 shows this growth in 8YY numbers.

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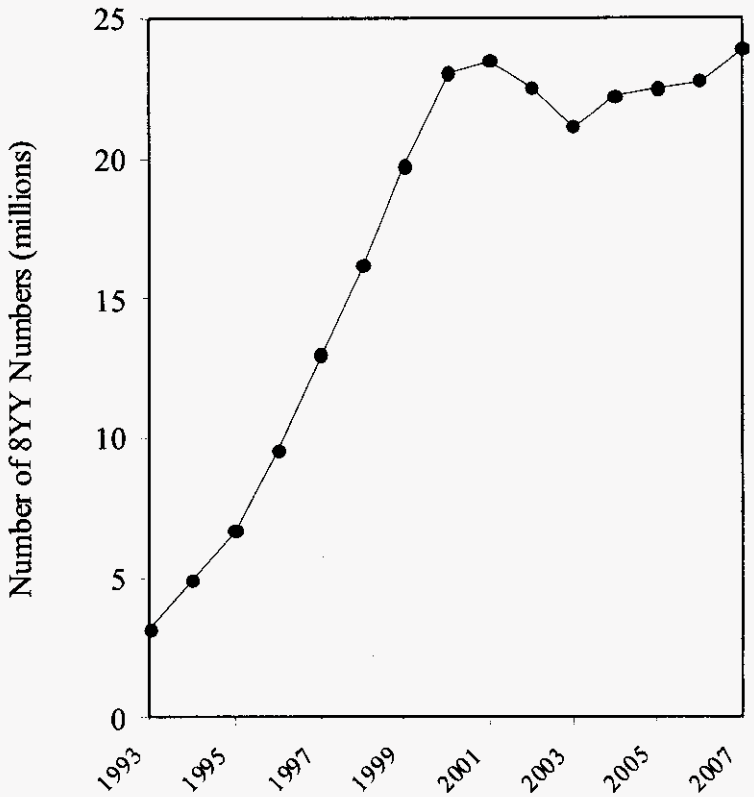
106. The seminal paper on network effects is Jeffrey Rohlfs, *A Theory of Interdependent Demand for a Communications Service*, 5 BELL. J. ECON. & MGMT. SCI. 16 (1974).

107. *See* 7 Digits on a Cell Phone, www.tollfreenumbers.com (last visited Dec. 28, 2009).

108. FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 18.3.

FIGURE 19: THE NUMBER OF WORKING 8YY NUMBERS, 1993 – 2007



Source: FCC, TRENDS IN TELEPHONE SERVICE, *supra* note 75, tbl. 18.3.

2. The Social Cost of Providing "Free" 8YY Calls

96. Hypercube, or any other carrier, is both precluded from charging the calling party for making 8YY calls and required to connect these calls.[109] Thus, Hypercube must provide a service for which it cannot charge the calling party. These toll-free calls, although not billed to the calling party, are not costless for the carrier to provide.

97. To provide a connection, a carrier incurs both the sunk cost of building its network and the marginal cost of delivering each additional call. The incremental cost of each additional call to an existing network is low; consequently, marginal cost pricing is

109. *Hypercube Answer to First Petition* ¶ 120.

insufficient to recover a firm's significant sunk costs.[110] To recover its sunk investment with a usage-based fee, the firm (or its regulator) must set prices above marginal cost, seeking as its goal the "optimal departures from marginal cost pricing" associated with Ramsey pricing and other inverse-elasticity pricing rules.[111] In addition, private investors will continue to fund the telecommunications networks' sunk investments only if they are expected to generate a reasonable return. Uncertainty over whether a carrier will be able to recoup its sunk costs increases risk and consequently increases the return that investors will demand before choosing to invest. In turn, this increase in the cost of capital marginally reduces the magnitude of telecommunications investments made.[112] Thus, carriers must be able to expect a reasonable opportunity to recoup the cost associated with 8YY calls to encourage the proper level of investment in the infrastructure needed to ensure quality of service.

98. Telecommunications networks are also subject to negative network effects. Network capacity is limited, and proper price signals are needed so that those who consume the network's capacity also bear the costs of generating it.[113] If an IXC does not pay for a service where an arms-length transaction would require payment, it will use more of that service than is economically efficient. That is, the cost of producing the service will exceed the value that consumers attach to the service. Thus, it is important that, for each network service used within a call, the cost of that service is recovered so that a carrier most efficiently allocates its limited network resources.

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110. *See, e.g.*, WILLIAM J. BAUMOL & J. GREGORY SIDAK, TOWARD COMPETITION IN LOCAL TELEPHONY 34 (MIT Press 1994).

111. *See* William J. Baumol & David F. Bradford, *Optimal Departures from Marginal Cost Pricing*, 60 AM. ECON. REV. 265 (1970).

112. *See* SAMUELSON & NORDHAUS, *supra* note 34, at 425.

113. *See* J. Gregory Sidak & Daniel F. Spulber, *Cyberjam: The Law and Economics of Internet Congestion of the Telephone Network*, 21 HARV. J.L. & PUB. POL'Y 327, 350 (1998).

V. COMPETITIVE TANDEM SWITCHING ENHANCES CONSUMER WELFARE BY ADDING VALUE TO THE TELECOMMUNICATIONS NETWORK

99. Hypercube provides a competitive tandem switching service that contributes to the ubiquity and seamlessness of the telecommunications network.[114] Hypercube's voluntary agreements with IXCs, including AT&T and Verizon, substantiate the value that its competitive tandem switching creates.

A. Hypercube Advances the Ubiquity and Seamlessness of the Telecommunications Network

100. Ubiquity is one of the FCC's bedrock goals in the development of the nation's telecommunications networks.[115] Ubiquity relates to the universality of service; seamlessness relates to the quality of service. Competitive tandem switching promotes allocative, productive, and dynamic efficiency in the switching and transport of calls. That greater economic efficiency promotes ubiquity and seamlessness.

1. The Economic Significance of Ubiquity and Seamlessness

101. Ubiquity and seamlessness sometimes sound like abstract goals. The phrases are most related to "universal service," which Congress defined in section 254 of the Telecommunications Act of 1996 as "an evolving level of telecommunications services that the [Federal Communications] Commission shall establish periodically."[116] This evocative phrase denotes the general availability of affordable telecommunications services, the precise interpretation of which varies considerably over time and space. Viewed in these terms, the economic meaning of ubiquity in telecommunications networks becomes more concrete and significant.

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114. BOC NOTES ON THE LEC NETWORKS, *supra* note 4, at 4-6; *see also* Hypercube One Pager–11.18.09 (00307401) 1 (Nov. 24, 2009), *available at* http://www.Hypercube-llc.com/corporate/about/Hypercube%20One%20Pager%20-%2011.18.09%20%2800307401%29.pdf.

115. *Seventh Report and Order* 16 F.C.C. Rcd. at 9,925 ¶ 6.

116. 47 U.S.C. § 254.

102. The goal of ubiquity reflects the desire to exploit beneficial network effects that arise as subscribership on a network increases. Network effects refer to demand complementarities that occur as a result of higher levels of network access and usage.[117] These network effects are benefits that accrue to each network user as the size of a network grows: An individual consumer's demand to use the telephone network increases with the number of others users on the network whom she can call or from whom she can receive calls.[118] Therefore, the goal of promoting network ubiquity translates, in economic terms, to the welfare-enhancing goal of increasing subscribership to, and usage of, the network so as to maximize consumer welfare in light of positive network effects.

103. The goal of network seamlessness also lends itself to a concrete economic interpretation. It addresses the "holdup" problem in economics. The holdup problem arises when two parties can work most productively by cooperating but refrain from doing so due to concerns that one party may give the other party increased bargaining power.[119] As a result, Pareto efficiency cannot be achieved.[120]

104. A company supplying telecommunications services must undertake irreversible, market-specific investments with substantial sunk investments to perform its functions. The existence of sunk investments creates the opportunity for holdup to occur. Seamlessness, which corresponds to the reliability of quality of service in the provision of

117. *See, e.g.*, J. GREGORY SIDAK & DANIEL F. SPULBER, DEREGULATORY TAKINGS AND THE REGULATORY CONTRACT: THE COMPETITIVE TRANSFORMATION OF NETWORK INDUSTRIES IN THE UNITED STATES 547 (Cambridge University Press 1997).

118. *See* INGO VOGELSANG & BRIDGER M. MITCHELL, TELECOMMUNICATIONS COMPETITION: THE LAST TEN MILES 51-53 (MIT Press 1997); LESTER D. TAYLOR, TELECOMMUNICATIONS DEMAND IN THEORY AND PRACTICE 9 (Kluwer Academic Publishers 1994); JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 405 (MIT Press 1988).

119. *See* Sanford J. Grossman & Oliver D. Hart, *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration*, 94 J. POL. ECON. 691 (1986).

120. A Pareto efficient outcome is one resulting in an "[a]llocation of goods in which no one can be made better off unless someone else is made worse off." PINDYCK & RUBINFELD, *supra* note 16, at 584.

network access, is achieved when service providers forbear from engaging in opportunistic behavior. Common carriage imposes on service providers the obligation to provide network access. It encompasses forbearance from the right to refuse service, which is the default rule in unregulated markets.

105. However, a second necessary requirement for network seamlessness is that service providers continue to have the incentive to engage in voluntary exchange. For that incentive to exist, a service provider must expect to receive acceptable compensation for the network access that it is obligated to supply. This implicit requirement to compensate applies equally to cases that deviate from the usual billing configuration of "calling party pays" (CPP). In the case of toll-free calls, the billing configuration is "receiving party pays." DeltaCom's 8YY subscribers pay to receive 8YY calls. DeltaCom has engaged in transactions with Hypercube and held itself out to other common carriers as being *willing* to pay, yet it subsequently has *refused* to pay. In doing so, DeltaCom has engaged in holdup, which compromises the seamlessness of the network.

106. In sum, the regulatory goals of ubiquity and seamlessness have significant and concrete economic connotations and implications. Implementing those objectives increases social welfare and economic efficiency. In contrast, if an IXC were allowed to refuse to pay for competitive tandem switching services provided under tariff or price list, the CLEC that supplies those services would not recover its costs. In response, suppliers of competitive tandem switching either would exit the market or would have less incentive to make further investment. That outcome would eventually reduce innovation and service quality, which can never improve the ubiquity and seamlessness of the telecommunications network.

2. Tandem Switching Promotes Efficient Transport and Routing of Calls

107. In general, tandem switches—also known as Class 4 switches—are used for long-distance communications in the public switched telephone network (PSTN), whereas Class 5 switches are primarily used to terminate local calls.[121] A tandem switch connects one trunk to another in series.[122] It is an intermediate switch or connection between an originating telephone call or location and the final destination of the call. Tandem switching is necessary to route calls between carriers to ensure universal connectivity among end users. Hypercube's competitive tandem service is an alternative to traditional networks that provides network diversity and reliability.[123]

108. Tandem switching promotes ubiquity and seamlessness by increasing consumer access. Compared with the traditional tandems, competitive tandem services do not require the purchase of traditional network services to interconnect at multiple tandems.

B. Hypercube's Voluntary Direct-Connection Agreements with IXCs [redacted], Substantiate the Value That Its Competitive Tandem Switching Creates

109. DeltaCom has refused to pay for Hypercube's provision of originating access and tandem switching on the grounds that Hypercube's service adds no value to the telecommunications network. Yet, other IXCs—[redacted]—have entered into, and continue to abide by, voluntary agreements with Hypercube for the provision of this same service. These voluntary agreements substantiate the value of Hypercube's competitive tandem switching service and refute DeltaCom's claim that it does not derive economic benefit from Hypercube's service.

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121. *See* 3 BELL COMMUNICATIONS RESEARCH, TELECOMMUNICATIONS TRANSMISSION ENGINEERING 4 (Bellcore 3d ed. 1990).

122. With intelligent-network configurations, the 8YY service line is similar to an ordinary telephone line in that the 8YY number is translated to a regular ten-digit number for switching after the originating central office consults a central database. *Id.* at 230.

123. *Hypercube Ex Parte Presentation* at 5.

1. The Voluntary Nature of IXCs' Direct-Connection Agreements with Hypercube Confirms That IXCs Benefit from Hypercube's Services

110. In a filing submitted to the FCC in July 2009, DeltaCom asserted that it does not benefit from Hypercube's service.[124] However, the fact that a number of IXCs, [redacted], have entered into voluntary agreements with Hypercube substantiates that the service provided by Hypercube is valuable to IXCs, contrary to DeltaCom's claim. As a matter of first principles of economics, voluntary exchange is mutually beneficial. For a transaction to occur voluntarily, it must benefit both parties.[125] Hypercube's service of receiving and switching toll-free calls originating on wireless networks facilitates the provision of [redacted] 8YY services. If [redacted] did not value Hypercube's competitive tandem switching, then compensating Hypercube for that service would make their interexchange businesses worse off. [redacted] would discontinue using Hypercube's service.

111. In a voluntary exchange, each party offers the other consideration at least equal to the opportunity cost of the resource to be conveyed. The opportunity cost associated with allocating a resource to a particular use refers to all forgone potential earnings derived from alternative uses of that resource. In a competitive market, price incorporates compensation for opportunity costs.[126]

112. The opportunity cost associated with carrying 8YY calls from wireless carriers implies the value of Hypercube's service. Say that an IXC's opportunity cost associated with carrying an 8YY call from a wireless carrier's MTSO to the IXC's point of

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124. Ex Parte Presentation of DeltaCom, Inc., at 1, Re FCC Petition for Declaratory Ruling Regarding Access Charges by Certain Inserted CLECs for CMRS-Originated Toll-Free Calls, WC Dkt. Nos. 01-92, 96-262 (filed with the FCC July 1, 2009).

125. *See, e.g.*, PINDYCK & RUBINFELD, *supra* note 16, at 584.

126. *See* William J. Baumol & J. Gregory Sidak, *The Pricing of Inputs Sold to Competitors*, 11 YALE J. ON REG. 171, 178 (1994).

presence is *A*, and the rates that Hypercube charges pursuant to its price list for the provision of originating access and tandem switching is *B*. If the IXC chooses to purchase Hypercube's competitive tandem switching service, it must be the case that *B* is less than *A*. That is, it would cost the IXC more to carry an 8YY call from the MTSO itself. Therefore, the IXC benefits by using Hypercube's service as opposed to supplying its own comparable services.

113. The use of Hypercube's tandem switching service by [redacted] is voluntary and therefore mutually beneficial. Consequently, one can conclude that the services that Hypercube provides are economically valuable. Those commercially negotiated prices represent the IXCs' valuation of, and willingness to pay for, Hypercube's service. These voluntary transactions substantiate that Hypercube adds value to the telecommunications network through its provision of competitive tandem switching. It therefore serves the public interest, and is efficient on economic grounds, for Hypercube to be compensated for the services that it provides to DeltaCom to deliver 8YY calls that are initiated on wireless networks.

2. The Benefits to [redacted] from Transactions with Hypercube Substantiate the Value that DeltaCom Derives from Hypercube's Service

114. [redacted] telecommunications company that is fully capable, in the many regions where it owns local exchange facilities, of carrying a call for one of its 8YY customers from an MTSO to its IXC's switch. The same is true [redacted]. Yet, I am informed by Hypercube that it provides [redacted] access tandem switching of toll-free calls originating on wireless networks. In its [redacted] offers [redacted] by receiving toll-free wireless traffic from Hypercube. Similarly, to support [redacted], Hypercube receives 8YY calls and conducts database queries for carrier identification codes to route the

calls [redacted] then can use its own access tandem to route the calls to the appropriate IXC.[127]

115. Since December 2004, DeltaCom has refused to pay Hypercube for the provision of originating access and tandem switching of 8YY calls from wireless carriers,[128] on the grounds that it claims to derive no value from these transactions. Meanwhile, [redacted] among other IXCs, continue to have voluntary agreements with Hypercube for the provision of competitive tandem switching. It is common practice for sophisticated parties to commercial contracts (such as [redacted]) to reserve a right of early termination, subject to notice. One can conclude that the same Hypercube service that DeltaCom disparages as worthless continues to create value for [redacted] Otherwise [redacted] would have exercised their rights to terminate service.

116. Contrary to DeltaCom's claim, competitive tandem switching provides many tangible economic benefits. [redacted] *needs* Hypercube's service to transport 8YY calls from wireless carriers to IXCs. [redacted] When they contract with Hypercube in a local area, [redacted] That they continue to honor their contracts with Hypercube demonstrates that value results from their transactions with Hypercube. That value added can involve, among other things, network redundancy, preservation of capacity in the face of network capacity constraints, customizable and flexible call aggregation, simplified billing, and specialized call handling

127. [redacted]

128. *Hypercube Answer to First Amended Petition* ¶¶ 124, 126.

and disaster recovery routing.[129] In fact, on its [redacted] lists, among the benefits of its 800 service, that [redacted][130]

117. It is therefore not credible—logically or factually—for DeltaCom to defend its refusal to pay Hypercube on the grounds that it derives no value from Hypercube's service. [redacted] gain from transactions with Hypercube for the same provision of originating access and tandem switching from wireless networks. DeltaCom does not have a network as extensive as those of [redacted]. It therefore seems likely that the benefit that DeltaCom derives from using Hypercube's service exceeds, in relative terms, the benefit that [redacted] derives from using the same Hypercube service.

3. The Benefits to CMRS Carriers, Including AT&T, Verizon, and Sprint, Further Substantiate the Value of Hypercube's Service

118. Another indicator of the value of Hypercube's services is that wireless carriers, including AT&T, Verizon, and Sprint, routinely route 8YY calls through CLECs and ILECs to deliver them to the correct IXC. The fact that the "big three" wireless carriers use services like Hypercube's indicates that the most prominent CMRS carriers derive benefit from Hypercube's tandem-switched access and database query services in the delivery of 8YY calls initiated on their wireless networks. These large wireless carriers have made this type of arrangement an industry standard. Consequently, smaller CMRS carriers (like Leap, MetroPCS, and T-Mobile) must similarly employ tandem-switched access services provided by CLECs like Hypercube for the delivery of wireless-initiated 8YY calls simply to compete and remain viable in the market for wireless services.

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129. *Hypercube Ex Parte Presentation* at 5.
130. [redacted]

119. Furthermore, it is likely that small wireless carriers compete with the larger, vertically integrated CMRS carriers primarily through price, increasing the competitive importance of cost-saving services like Hypercube's. In its November 2007 prospectus, MetroPCS stated:

> Our service model results in average per minute costs to our customers that are significantly lower than the average per minute costs of other traditional wireless broadband PCS carriers. We believe that many prospective customers refrain from subscribing to, or extensively using, traditional wireless communications because of high prices, long-term contract requirements, confusing calling plans and significant cash deposit requirements for credit challenged customers. Our simple, cost-effective plans . . . allow us to attract many of these customers.[131]

MetroPCS also listed as one of its business strategies: "Offer Affordable, Fixed Price Unlimited Service Plans With No Long-Term Service Contract Requirement."[132] These statements indicate the significance of price as a factor in a small CMRS carrier's ability to compete against the large nationwide wireless carriers. If an IXC were permitted to withhold payment from a CLEC, such as Hypercube, upon which a small CMRS carrier relies for the delivery of the 8YY calls that are initiated on its network, that CMRS carrier would face increased difficulty competing in the market for wireless services.

C. DeltaCom's Allegation that Hypercube Is an "Inserted CLEC" Lacks Credibility

120. In the petition that it filed on October 23, 2009 with the Commission, DeltaCom described Hypercube's services as a "(needless) insertion into the call-flow," by which DeltaCom claimed that "Hypercube in effect replicates that which the wireless carrier otherwise does for itself."[133] By so characterizing Hypercube's services, DeltaCom attempts

131. MetroPCS, Offer to Exchange 9¼% Senior Notes Due 2014 That Have Been Registered Under the Securities Act of 1933 for Any and All 9¼% Senior Notes Due 2014, Prospectus, 99-100 (Nov. 7, 2009) *available at* http://sec.gov/Archives/edgar/data/1121026/000095013407021201/d46443b3e424b3.htm#112 (last visited Jan. 7, 2008).

132. *Id.* at 101.

133. *DeltaCom First Amended Petition* ¶ 3.

to frame Hypercube's commercial contracts with CMRS carriers as an "unlawful intrastate access charge arbitrage scheme."[134] This caricature of Hypercube's agreements with CMRS carriers belies the economic value of Hypercube's of tandem-switched access services and fails to recognize that such agreements are a market response to the negative externality that resulted as an unintended consequence of the mandatory detariffing of wireless networks. That market response should be applauded, not disparaged.

121. Although DeltaCom accuses Hypercube of "helping wireless carriers accomplish indirectly what federal and state law bars them from doing directly,"[135] it is DeltaCom that has acted opportunistically by refusing to pay for the service that Hypercube provides it pursuant to its price list, which is an essential input to DeltaCom's provision of 8YY service to its own customers. Moreover, directly connecting with Hypercube is equivalent to carrying 8YY traffic from an ILEC interconnected with the CMRS carrier. In other words, Hypercube's services constitute an "insertion into the call-flow," solely because of DeltaCom's own refusal to interconnect directly.

122. As I explained in Part I, Hypercube delivers about 90 percent of its wirelessly initiated intrastate 8YY traffic in the United States to IXCs with which it is directly interconnected. Those IXCs have taken the long view of their customers' welfare by acting to promote network seamlessness and ubiquity. DeltaCom, in contrast, appears focused on shorter-term profitability, even at the expense of economic efficiency and network ubiquity. Such shortsightedness disserves the long-run interests of consumers.

134. *Id.* ¶ 21.
135. *Id.* ¶ 3.

VI. CONCLUSION

123. In refusing to pay Hypercube for the access and competitive tandem-switching services that Hypercube has provided, DeltaCom harms consumer welfare by diminishing the ubiquity and seamlessness of the telecommunications network, as well as the marginal incentives of CMRS carriers, CLECs, and IXCs to invest in their networks to accommodate the demand for toll-free calls. DeltaCom attempts to justify its refusal to pay by claiming that Hypercube's competitive tandem-switching service has no value. However, IXCs' voluntary agreements with Hypercube demonstrate that IXCs, including DeltaCom, benefit from Hypercube's competitive tandem-switching service. DeltaCom's refusal to pay is not an a legitimate response to the alleged lack of value of Hypercube's competitive tandem-switching service, but rather an opportunistic assertion of self help by which DeltaCom seeks to avoid paying for a necessary input that it has used, and continues to use, to provide its own toll-free services.

124. FCC regulation governing interstate CLEC access charges as well as the Commission's own regulation governing intrastate CLEC access charges clearly permit the charging of tariffed rates for the provision of access, database query, and tandem switching for wireless-initiated 8YY calls. Moreover, the procedure by which DeltaCom legally could have contested the rates that Hypercube charges pursuant to its price list rates was to file a formal complaint with the Commission. By now unilaterally refusing payment to Hypercube while continuing to consume its services, DeltaCom is engaging in self help.

125. If DeltaCom were permitted to refuse payment for Hypercube's competitive tandem-switching service merely because DeltaCom disagrees with the rates it is charged, it would risk disrupting the provision of 8YY and wireless services, each of whose markets is

growing in significance. As a result of the mandatory detariffing of wireless service in 1994, CMRS carriers today are prevented from using tariffs to recover from IXCs the costs of delivering 8YY calls initiated on wireless networks. The negative externality that results from this regulatory artifact leads to diminished investment incentives of CMRS carriers to provide, and improve on the quality of, 8YY services. Because CMRS carriers cannot refuse to provide access for 8YY services, the increased costs of providing 8YY access due to DeltaCom's opportunistic behavior would likely result in marginally higher prices for all wireless subscribers. By conducting econometric analysis of actual Hypercube data, I find that DeltaCom consumed over [redacted] million additional minutes of use for wireless-initiated 8YY calls over the period of its refusal to pay Hypercube.

126. Given the dramatic growth of wireless demand, any inability of CMRS carriers to recover the cost associated with transporting 8YY calls from wireless networks to IXCs risks becoming an increasingly significant disincentive to network investment for CMRS carriers. Contractual arrangements between CMRS carriers and CLECs, such as Hypercube, allow CMRS carriers to avoid some of the costs associated with delivering 8YY traffic to IXCs. If DeltaCom were permitted to stop paying for Hypercube's competitive tandem-switching service and were thereby able to obstruct access agreements between Hypercube and CMRS carriers, it would hinder investment incentives of wireless carriers and compel wireless carriers to raise prices for all of their subscribers. Moreover, the two-sided nature of demand for 8YY calls indicates that 8YY subscribers and the IXCs that provide 8YY service, such as DeltaCom, are better suited to pay for the local transport, switching, and database queries for 8YY services because IXCs have more inelastic demand for 8YY access than wireless subscribers.

127. In light of the significant economic value that Hypercube's services provide, it will serve the public interest for the Commission to grant Hypercube's requested relief. DeltaCom's unlawful refusal to pay for the services that Hypercube continues to provide pursuant to its price list—and which DeltaCom continues to consume—reduces the incentives that CMRS carriers, CLECs, and IXCs have to invest in core infrastructure and thereby threatens network ubiquity and seamlessness.