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Federal Communications Commission  
Washington, D.C. 20554

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In the Matter of )  
Annual Assessment of the Status of )  
Competition in Markets for the )  
Delivery of Video Programming )

CS Docket No. 99-230

**SIXTH ANNUAL REPORT**

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Commissioner Tristani issuing a statement.

**Table of Contents**

	<u>Paragraph</u>
I. Introduction .....	1
A. Scope of this Report .....	2
B. Summary of Findings .....	5
II. Competitors in Markets for the Delivery of Video Programming .....	17
A. Cable Industry .....	17
B. Direct Broadcast Satellite Services .....	69
C. Home Satellite Dishes .....	84
D. Multichannel Multipoint Distribution Systems .....	85
E. Satellite Master Antenna Systems .....	92
F. Broadcast Television Service .....	101
G. Other Entrants .....	110
1. Internet Video .....	110
2. Home Video Sales and Rentals .....	117

H.	Local Exchange Carriers .....	120
I.	Electric and Gas Utilities.....	136
III.	Market Structure and Conditions Affecting Competition.....	138
A.	Horizontal Issues in Markets for the Delivery of Video Programming.....	138
1.	Competitive Issues in Markets for the Delivery of Video Programming .....	140
2.	Competitive Issues in Markets for the Purchase of Video Programming.....	160
B.	Vertical Integration and Other Programming Issues.....	178
1.	Status of Vertical Integration.....	178
2.	Other Programming Issues .....	183
C.	Technical Advances.....	206
1.	Deployment of Digital Technology.....	207
2.	Navigation Devices.....	210
3.	Cable Modems .....	212
IV.	Competitive Responses .....	215
A.	New Case Studies .....	217
1.	Royal Oak, Huntington Woods, and Clausen, Michigan .....	217
2.	West Point, Georgia.....	222
3.	Somerville, Massachusetts .....	227
4.	Various Communities, Vermont .....	234
5.	Lebanon, Ohio.....	240
B.	Preliminary Findings .....	244
V.	Administrative Matters .....	249
Appendices		
A.	List of Commenters	
B.	Cable Industry Tables	
C.	Horizontal Issues Tables	
D.	Vertical Integration Tables	

## I. INTRODUCTION

1. Section 628(g) of the Communications Act of 1934, as amended (“Communications Act”), requires the Commission to report annually to Congress on the status of competition in markets for the delivery of video programming.<sup>1</sup> Congress imposed this annual reporting requirement in the Cable Television Consumer Protection and Competition Act of 1992 (“1992 Cable Act”)<sup>2</sup> as a means of obtaining information on the competitive status of markets for the delivery of video programming.<sup>3</sup> This is the Commission’s sixth annual report (“1999 Report”) submitted pursuant to Section 628(g) of the Communications Act.<sup>4</sup>

### A. Scope of this Report

2. In this *1999 Report*, we update the information in our previous reports and provide data and information that summarizes the status of competition in markets for the delivery of video programming. The information and analysis provided in this report are based on publicly available data, filings in various Commission rulemaking proceedings, and information submitted by commenters in response to a *Notice of Inquiry* (“Notice”) in this docket.<sup>5</sup> To the extent that information provided in previous annual reports is still relevant, we do not repeat that information in this report other than in an abbreviated fashion, and provide references to the discussions in prior reports.

3. In Section II, we examine the cable television industry, existing multichannel video programming distributors (“MVPDs”) and other program distribution technologies and potential competitors to cable television. Among the MVPD systems or techniques discussed are direct broadcast satellite (“DBS”) services and home satellite dishes (“HSDs”), wireless cable systems using frequencies in the multichannel multipoint distribution service (“MMDS”) and the instructional television fixed service (“ITFS”), private cable or satellite master antenna television (“SMATV”) systems as well as broadcast

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<sup>1</sup> Communications Act of 1934, as amended, § 628(g), 47 U.S.C. § 548(g).

<sup>2</sup> Pub.L. No. 102-385, 106 Stat. 1460 (1992).

<sup>3</sup> The 1992 Act imposed a regulatory scheme on the cable industry designed to serve as a transitional mechanism until competition develops and consumers have adequate multichannel video programming alternatives. One of the purposes of Title VI of the Communications Act, Cable Communications, is to “promote competition in cable communications and minimize unnecessary regulation that would impose an undue economic burden on cable systems.” 447 U.S.C. § 521(6).

<sup>4</sup> The Commission’s previous reports appear at: Implementation of Section 19 of the 1992 Cable Act (Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming), CS Docket No. 94-48, First Report (“1994 Report”), 9 FCC Rcd 7442 (1994); Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, CS Docket No. 95-61, Second Annual Report (“1995 Report”), 11 FCC Rcd 2060 (1996); Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, CS Docket No. 96-133, Third Annual Report (“1996 Report”), 12 FCC Rcd 4358 (1997); Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, CS Docket No. 97-141, Fourth Annual Report (“1997 Report”), 13 FCC Rcd 1034 (1998); and Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, CS Docket No. 98-102, Fifth Annual Report (“1998 Report”), 13 FCC Rcd 24284 (1998).

<sup>5</sup> *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket No. 99-230, Notice of Inquiry (“Notice”), 14 FCC Rcd 9617 (1999). Appendix A provides a list of commenters.

television service. We also consider other existing and potential distribution technologies for video programming, including the Internet, home video sales and rentals, local exchange telephone carriers ("LECs"), and electric and gas utilities. We include these services and providers because they offer, or may offer, video programming or video programming in conjunction with nonvideo services.

4. In Section III of this report, we examine market structure and competition. We evaluate horizontal concentration in the multichannel video marketplace and vertical integration between cable television systems and programming services. We also discuss competitors serving multiple dwelling unit ("MDU") buildings. We further address programming issues and technical advances. In Section IV, we examine a limited number of cases where consumers have a choice between an incumbent cable operator and another MVPD in a specific market and report on the effects of this entry.

## **B. Summary of Findings**

5. In the *1999 Report*, we examine the status of competition in markets for the delivery of video programming, discuss changes that have occurred in the competitive environment over the last year, and describe barriers to competition that continue to exist. Overall, the *Report* finds that competitive alternatives and consumer choices continue to develop. Cable television still is the dominant technology for delivery of video programming to consumers in the MVPD marketplace, although its market share continues to decline. As of June 1999, 82% of all MVPD subscribers received their video programming from a local franchised cable operator, compared to 85% a year earlier.

6. The total number of subscribers to both cable and noncable MVPDs continues to increase. A total of 80.9 million households subscribed to multichannel video programming services as of June 1999, up 5.5% over the 76.6 million households subscribing to MVPDs in June 1998. This subscriber growth accompanied a 3.2 percentage point increase in multichannel video programming distributors' penetration of television households to 81.4% as of June 1999.

7. Since the *1998 Report*, the number of cable subscribers continued to grow, reaching 66.7 million as of June 1999, up almost 2% over the 65.4 million cable subscribers in June 1998. The total number of noncable MVPD households grew from 11.2 million as of June 1998 to 14.2 million homes as of June 1999, an increase of 26%.

8. Much of the increase in the growth of noncable MVPD subscribers is attributable to the growth of DBS. DBS appears to attract former cable subscribers and consumers not previously subscribing to an MVPD. Between June 1998 and June 1999, the number of DBS subscribers grew from 7.2 million households to 10.1 million households. DBS subscribers now represent 12.5% of all MVPD subscribers. There also have been a number of additional cable overbuilds in the last year. While the Commission has certified new open video systems, some OVS operators have converted portions of their systems to franchised cable operations. Over the last year, the number of subscribers to and market shares of HSD and MMDS subscribers continued to decline. However, the number of SMATV subscribers has increased this year, reversing a decline exhibited the previous year.

9. During the period under review, cable rates rose faster than inflation, although the difference between the cable price index and the Consumer Price Index ("CPI") is not as great as in the previous year. According to the Bureau of Labor Statistics, between June 1998 and June 1999, cable prices rose 3.8% compared to a 2% increase in the CPI, which measures general price changes. Concurrently with these rate increases, capital expenditures for the upgrading of cable facilities increased (up 13.2% over 1998), the number of video and nonvideo services offered increased, and programming costs increased (license fees increased by 14.6% and programming expenses increased by 16.3%). In addition, the increase

in labor costs in the communications industry is reported to exceed the increase in labor costs for all industries combined by almost 2%. We note that during this period, on March 31, 1999, rates for cable programming service tiers ("CPSTs") were deregulated by Congress.<sup>6</sup> We also note that cable operators' pricing decisions may be affected where direct competition exists. Available evidence indicates that when an incumbent cable operator faces head-to-head competition, it responds in a variety of ways, including lowering prices or adding channels without changing the monthly rate, as well as improving customer service and adding new services such as interactive programming.

10. The Telecommunications Act of 1996 ("1996 Act")<sup>7</sup> removed barriers to LEC entry into the video marketplace in order to facilitate competition between incumbent cable operators and telephone companies. For example, the 1996 Act repealed a statutory prohibition against an entity holding attributable interests in a cable system and a LEC with overlapping service areas. At the time of the 1996 Act's passage, it was expected that local exchange telephone carriers would begin to compete in video delivery markets, and cable operators would begin to provide local telephone exchange service. Since the *1998 Report*, there has been an increase in the amount of video programming provided to consumers by telephone companies, although the expected technological convergence that would permit use of telephone facilities for video service has not yet occurred. Ameritech now holds 111 cable franchises and reports that it serves approximately 250,000 subscribers. BellSouth has received cable franchises in 21 areas with the potential to pass 1.4 million homes in addition to its right to provide MMDS service to approximately 3.5 million homes. Other LECs, including GTE, SNET, and U S West, also provide cable television service in a number of areas. As reported last year, Bell Atlantic and SBC have joint marketing agreements with DirecTV in order to offer video service to their telephone customers in some areas. While the 1996 Act created the OVS framework as a means of entry into the video marketplace by LECs, few telephone companies have sought certification. Alternatively, only a limited number of cable operators have begun to offer telephone service, and such service uses traditional telephone switching equipment rather than cable facilities. However, cable operators are beginning to develop and test Internet Protocol ("IP") telephony. The potential to provide telephone service prompted several large transactions over the past year, most notably AT&T's purchase of Telecommunications, Inc. ("TCI").

11. Since the *1998 Report*, the most significant convergence of service offerings has been the pairing of Internet service with other service offerings. There is evidence that a wide variety of companies throughout the communications industries are attempting to become providers of multiple services, including data access. Cable operators continue to expand their broadband infrastructure that permits them to offer high-speed Internet access. Currently, the most popular way to access the Internet over cable is through the use of a cable modem and personal computer. A small portion of cable Internet access is delivered through a television receiver rather than a personal computer. Many cable operators also are planning to integrate telephony and high-speed data access. Like cable, the DBS industry is developing ways to bring advanced services to their customers. For example, Hughes Network Systems, Inc., parent of DirecTV, offers a satellite-delivered Internet access service ("DirecPC") with a telephone return path. EchoStar and OpenTV, Inc., a company that produces interactive television technology, plan to offer e-mail, e-commerce, and on-line banking services in the next year. SMATV operators are also beginning to offer local and long distance telephone service and Internet access along with video service. In addition, a few MMDS operators are offering Internet service.

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<sup>6</sup> See Sections 623(c)(3) and (c)(4); 47 U.S.C § 543(c)(3) and (c)(4).

<sup>7</sup> Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996).

12. The data provided in this *Report* suggest that companies comprising several different segments of the communications industry are seeking to provide combinations of services to consumers, including video, voice, and data. In this context, we believe it is appropriate to compare the cable industry with other communications industry segments that currently provide, or plan to provide, such combinations of services. Specifically, we find that the cable television industry holds a relatively small market share compared to other communications industry segments that offer or intend to offer video, voice, and data services. For example, in 1998, the total revenue for these segments of the communications industry (i.e., cable television, MMDS, DBS, television broadcasting, long distance telephone, and local telephone) was \$334 billion. Of this total, cable operators represented 12.3% of the communications industry's revenues.

13. Noncable MVPDs continue to report that regulatory and other barriers to entry limit their ability to compete with incumbent cable operators and to thereby provide consumers with additional choices. Noncable MVPDs also continue to experience some difficulties in obtaining programming from both vertically integrated cable programmers and unaffiliated programmers who continue to make exclusive agreements with cable operators. In multiple dwelling units ("MDUs"), potential entry may be discouraged or limited because an incumbent video programming distributor has a long-term and/or exclusive contract. Other issues also remain with respect to how, and under what circumstances, existing inside wiring in MDUs may be made available to alternative video service providers.

14. In addition, consumers have historically reported that their inability to receive local signals from DBS operators may negatively affect their decision as to whether to subscribe to DBS. The Commission previously recommended that legislation be enacted to remove barriers to DBS carriage of local broadcast signals. On November 29, 1999, a revised Satellite Home Viewer Act ("SHVA") was signed into law, permitting satellite providers to distribute local broadcast signals within their local television markets.<sup>8</sup> On that date, DBS operators began offering local broadcast stations in some markets, and reported plans to provide local broadcast stations to a significant portion of U. S. households within the next few months. The Commission hopes that the revised SHVA will have a significant and positive effect on MVPD competition. We expect that DBS operators will now offer a programming package more comparable to and competitive with the services offered by cable operators. We further believe that increased competition is the best way to keep cable rates reasonable and in check. Moreover, the Commission plans to aggressively implement the new SHVA in order to facilitate consumer choice in the MVPD marketplace.

15. Our findings as to particular distribution mechanisms operating in markets for the delivery of video programming include the following:

■ **Cable Systems:** Since the *1998 Report*, the cable television industry has continued to grow in terms of subscribership (up to 66.7 million subscribers as of June 1999, a 2% increase from June 1998), channel capacity (some operators now offer over 170 video channels), number of national satellite-delivered video programming services (up to 283 services by June 1999 from 245 in June 1998, a 16% increase), revenues (an approximate 8% increase between June 1998 and June 1999), audience ratings (non-premium cable viewership rose from a 39 share at the end of June 1998 to a 42 share at the end of June 1999), and

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<sup>8</sup> Pub. L. No. 106-113, § 1000(9), 113 Stat. 1501 (enacting S. 1948, including the Satellite Home Viewer Improvement Act of 1999 ("SHVIA"), Title I of the Intellectual Property and Communications Omnibus Reform Act of 1999 ("IPACORA"), relating to copyright licensing and carriage of broadcast signals by satellite carriers, codified in scattered sections of 17 and 47 U.S.C.).

expenditures on programming (an approximate 15% increase in program license fees paid by cable system operators).

■ The cable industry remains healthy financially, which has enabled it to invest in improved facilities, either through upgrades or rebuilding. As a result, there have been increases in channel capacity, the deployment of digital transmissions that provide better picture quality than can be offered through analog service, and nonvideo services, such as Internet access. Cable operators also offer telephony, although the use of integrated facilities remains primarily experimental with limited exceptions.

■ Direct-to-Home ("DTH") Satellite Service (DBS and HSD): Video service is available from high power DBS satellites that transmit signals to small DBS dish antennas installed at subscribers' premises, and from medium and low power satellites requiring larger satellite dish antennas. In the last year, DirecTV merged with United States Satellite Broadcasting Co., Inc. ("USSB") and acquired PrimeStar. There are over ten million DBS subscribers (EchoStar, DirecTV, and PrimeStar's subscribers being transitioned to DirecTV's service), an increase of approximately 39% since the *1998 Report*. Between June 1998 and June 1999, the number of HSD subscribers, measured as the number of HSD users that actually purchase programming packages, declined from 2 million to 1.8 million, a decrease of 12%, that is likely due to subscribers switching to DBS. DirecTV and EchoStar are among the ten largest providers of multichannel video programming service. DBS represented a 12.5% share of the national MVPD market in June 1999 and HSD represented another 2.2% of that market.

■ Wireless Cable Systems: Currently, the wireless cable industry ("MMDS") provides competition to the cable industry in only limited areas. MMDS subscribership fell from 1.0 million subscribers to 821,000 subscribers between June 1998 and June 1999, a decrease of 17.9%. Analysts state that the advent of digital MMDS and the Commission's authorization of two-way MMDS service will make high-speed Internet and telephony possible and have the potential to foster renewed MMDS growth. Wireless cable represented a 1% share of the national MVPD market in June 1999.

■ SMATV Systems: SMATV systems use some of the same technology as cable systems, but do not use public rights-of-way, and focus principally on serving subscribers living in multiple dwelling units ("MDUs"). SMATV subscribership has increased 54% since the last report, with the industry representing an approximately 1.8% share of the national MVPD subscribership as of June 1999. Upgraded facilities, and expanded service offerings to include DBS programming, Internet access, telephone service, and security services, have fostered SMATV growth.

■ Broadcast TV: Broadcast networks and stations are competitors to MVPDs in the advertising and program acquisition markets and supply video programming directly to the approximately 20% of television households that are not MVPD subscribers. Additionally, broadcast networks and stations are suppliers of content for distribution by MVPDs. Since the *1998 Report*, the broadcast industry has continued to grow in the number of operating stations (from 1583 in 1998 to 1599 in 1999) and in advertising revenues (\$34.6 billion in 1998, a 6.7% increase over 1997). While audience levels have declined in the last year, the four major television broadcast networks still account for a 52% share of prime time television viewing for all television households. Broadcast television stations continue to deploy digital television ("DTV") service. There are 111 television stations on the air broadcasting DTV signals and digital simulcasts of some programming have begun.

■ LEC Entry: The 1996 Act expanded opportunities for LECs to enter markets for the delivery of multichannel video programming. As noted in previous reports, LECs do not yet represent a national presence in the MVPD market. The competitive presence of LECs in specific video markets,

however, is growing. In certain areas, especially in the midwest, LECs are already or are becoming significant regional competitors. Particularly notable are the efforts of Ameritech as a cable overbuilder and BellSouth as an overbuilder and MMDS operator. Ameritech has acquired 111 cable franchises, potentially passing more than 1.7 million homes. Ninety of these cable franchises are operational, in whole or in part, and they serve at least 250,000 subscribers. BellSouth has acquired cable franchises in 18 areas, with the potential to pass 1.2 million homes, and is launching digital MMDS service in a number of areas. In previous reports, we noted that, while LECs were not yet a national competitor, their competitive presence was growing. It now appears that their rate of entry into the MVPD marketplace may be slowing.

■ **Open Video Systems:** In the 1996 Act, Congress established a new framework for the delivery of video programming -- the open video system ("OVS"). Under these rules, a LEC or other entrant may provide video programming to subscribers, although the OVS operator must provide non-discriminatory access to unaffiliated programmers on a portion of its channel capacity. The Commission has certified 13 OVS operators to serve 28 areas. RCN owns the only operating open video systems and currently serves areas surrounding Boston, New York City, and Washington, D.C. In several areas for which it holds OVS certifications, or portions of these areas, RCN has converted its systems to franchised cable systems. Between June 1998 and June 1999, the number of OVS subscribers went from approximately 66,000 to 60,000, a decline attributed to the conversion of some OVS operations to cable service. OVS subscribers now represent slightly less than 1% of all MVPD subscribers. As a result of litigation that was resolved in January 1999, one of the major advantages for an entity choosing the OVS mode of regulation -- the absence of any need for a traditional cable television franchise -- may no longer exist.

■ **Internet Video:** By June, 1999 there were an estimated 50 million households with personal computers and over 100 million Americans were Internet users. Previously, we reported on the availability of software technologies that make real-time and downloadable audio and video from the Internet accessible through a personal computer. We also noted that there are technologies available for the provision of Internet video over a television using set-top box Internet access. As of June 1999, investment and development of Internet video services was continuing, though video pictures offered by Internet video still remain less than broadcast quality. Media companies continue to offer increasing amounts of video over their Web sites in the expectation that the pictures will be acceptable for the intended use or eventually improve to broadcasting or VCR quality.

■ **Home Video Sales and Rentals:** Video cassettes, laser discs, and digital video discs ("DVDs") provide feature films similar to those distributed by cable operators on premium channels and others involved in the distribution of video programming. The number of homes with DVD players has grown rapidly in the two years since this technology was introduced. About two million homes have DVD players and about the same number have laser disc players, far less than the 82% of all households with VCRs. Most new home video programming available for sale or rental, including movies, documentaries and concerts, is released in VCR, laser disc, and DVD formats. Recently a new home video technology, the personal video recorder ("PVR") has been introduced. A PVR can pause, rewind, and perform slow motion and instant replay of a live program, thereby allowing a viewer to watch earlier portions of a program while later portions of the program are still being broadcast. A PVR is intended for use with a service that provides an onscreen programming guide service through a telephone connection. This technology can be used to create a personal menu and can learn to record in accordance with a viewer's television preferences.

■ **Electric Utilities:** Utilities are not yet major competitors in the telecommunications or cable markets, but they possess characteristics that could potentially help them become competitively significant in the cable market. Some may already possess fiber-optic networks throughout the public

rights-of-way in the areas they serve. In the last year, several utilities have announced, commenced, or moved forward with ventures involving multichannel video programming distribution. Starpower, a joint venture between RCN and PEPCO, has begun to offer video, telephone, and Internet services in the Washington, D.C. area. Seren, a wholly-owned subsidiary of Minneapolis-based Northern States Power, is currently offering cable and high-speed data access as an overbuilder in several Minnesota communities and plans to expand its service. Others, including several municipal utilities in Iowa, the municipal utility in Lebanon, Ohio, and Millennium Telecom, which is partially owned by Tri-County Electric Cooperative in Texas, have begun or plan to begin video and other services to their customers.

16. We also find:

■ Consolidations within the cable industry continue as cable operators acquire and trade systems. The seven largest operators now serve almost 90% of all U.S. cable subscribers. However, in terms of one traditional economic measure, national concentration among the top MVPDs has declined since last year.<sup>9</sup> DBS operators DirecTV and EchoStar rank among the ten largest MVPDs in terms of nationwide subscribership along with eight cable multiple system operators ("MSOs"). As a result of acquisitions and trades, cable MSOs have continued to increase the extent to which their systems form regional clusters. Currently, 40.4 million of the nation's cable subscribers are served by systems that are included in regional clusters. By clustering their systems, cable operators may be able to achieve efficiencies that facilitate the provision of cable and other services, such as telephony.

■ The number of satellite-delivered programming networks has increased from 245 in 1998 to 278 in 1999. Vertical integration of national programming services between cable operators and programmers, measured in terms of the total number of services in operation, declined from last year's total of 39% to 36% this year, continuing a five year trend. However, in 1999, one or more of the top six cable MSOs held an ownership interest in each of 101 vertically integrated national programming services. Sports programming warrants special attention because of its widespread appeal and strategic significance for MVPDs. The *Report* identifies 75 regional networks, 26 of which are sports channels, many owned at least in part by MSOs. There are also 30 regional and local news networks that compete with local broadcast stations and national cable networks (e.g., CNN).

■ The program access rules adopted pursuant to the 1992 Cable Act were designed to ensure that alternative MVPDs can acquire, on non-discriminatory terms, vertically-integrated satellite delivered programming. We recognize that the terrestrial distribution of programming, including in particular regional sports programming, could eventually have a substantial impact on the ability of alternative MVPDs to compete in the video marketplace. We will continue to monitor this issue and its impact on the competitive marketplace.

■ Technological advances that will permit MVPDs to increase both quantity of service (i.e., an increased number of channels using the same amount of bandwidth or spectrum space) and types of offerings (e.g., interactive services) continue. In particular, cable operators and other MVPDs continue to develop and deploy advanced technologies, especially digital compression, in order to deliver additional video options and other services (e.g., data access, telephony) to their customers. To access these wide

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<sup>9</sup> Traditional economic measures (e.g., the Herfindahl-Hirschman Index or HHI) are based on market shares or the squaring of market shares such that large companies are weighed more heavily than small companies. The HHI (and apparent levels of concentration) decline with rising equality among any given number of companies in terms of market shares even if these firms individually have larger shares of the markets.

ranging services, consumers use "navigation devices." In the last year, on reconsideration, the Commission made some modifications to the rules and policies adopted to implement Section 629 of the Communications Act, which is intended to ensure commercial availability of these navigation devices. The cable industry reports that it is making steady progress towards the development of specifications to separate out security and non-security functions for the interoperability of digital set-top boxes by July 1, 2000, as required by the rules. Interface requirements and a certification process for the high-speed cable modems needed to access data services have also been developed. When these processes are complete, additional competition in the market for equipment used by subscribers should be possible.

## II. COMPETITORS IN MARKETS FOR THE DELIVERY OF VIDEO PROGRAMMING

### A. Cable Industry

17. This section addresses the performance of franchised cable system operators<sup>10</sup> during the past year in five major areas. First, we report on general performance in terms of available basic services, subscriber levels, and viewership. Second, we discuss the cable industry's financial performance including its revenue, cash flow status, and stock valuations. Third, in the area of capital acquisition and disposition, we examine the amount of funds raised and describe how these funds are being used to upgrade physical plant and to acquire new systems. Fourth, we consider other performance indicators such as system transactions, cable overbuilds,<sup>11</sup> and rates charged by cable operators. Lastly, in the area of provision of advanced broadband services,<sup>12</sup> we review the growth of cable data access, digital broadband services, and broadband telephony.

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<sup>10</sup> A franchise is defined as an authorization supplied by a federal, state, or local government entity to own or construct a cable system in a specific area. Communications Act §§ 602(9), 602(10), 47 U.S.C. §§ 522(9), 522(10). A cable system operator is defined as "any person or group of persons (A) who provides cable service over a cable system, and directly or through one or more affiliates owns a significant interest in such cable system; or (B) who otherwise controls or is responsible for, through any arrangement, the management and operation of such a cable system." Communications Act § 602(5), 47 U.S.C. § 522(5). *See also* 47 C.F.R. § 76.5(cc).

<sup>11</sup> An "overbuild" occurs when two or more wireline cable television systems directly compete for subscribers in a local video programming delivery market.

<sup>12</sup> The services enabled by advanced telecommunications capability are called here "advanced broadband services." These services include "... high-quality voice [e.g., cable telephony and Internet Protocol ("IP") telephony], data [e.g., Internet access through cable modems], graphics [e.g., interactive guides], and video telecommunications [e.g., digital video, pay-per-view ("PPV"), video-on-demand ("VOD"), and interactive programming]. . . ." *See Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146, Report, 14 FCC Rcd 2398, 2406 ¶ 20 (1999).

## 1. General Performance

18. Since our last report, the cable industry has continued to grow in basic cable<sup>13</sup> subscribership, homes passed,<sup>14</sup> basic cable penetration,<sup>15</sup> premium service subscriptions,<sup>16</sup> basic cable viewership, and channel capacity.<sup>17</sup> In addition, during 1998 and the first half of 1999, the industry continued to implement expanded broadband service offerings including digital video, Internet access through cable, interactive cable, and facilities-based broadband telephony.

19. *Cable's Capacity to Serve Television Households.* The number of U.S. homes with at least one television ("TV households") was reported as 98 million at the end of 1997 and June 1998.<sup>18</sup> At the end of 1998 and June 1999, the number of U.S. TV Households was reported as 99.4 million.<sup>19</sup> The number of homes passed by cable was 94.6 million at the end of 1997 and 95.6 million at the end of 1998, an increase of 1.1%.<sup>20</sup> By the end of June 1999, the number of homes passed by cable was 96.1 million.<sup>21</sup>

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<sup>13</sup> We refer to all cable programming networks offered as a part of program packages or tiers as "basic cable networks." The primary level of cable television service is commonly referred to as "basic service" and must be taken by all subscribers. The content of basic service varies widely among cable systems but, pursuant to the Communications Act, must include all local television signals and public, educational, and governmental access channels and, at the discretion of the cable operator, may include satellite delivered cable programming channels carried on the system. One or more expanded tiers of service, known as Cable Programming Service ("CPS") tiers for purposes of rate regulation and often known as expanded basic, also may be offered to subscribers. These expanded tiers of service usually include additional satellite delivered cable programming channels and are available for additional monthly fees. Communications Act §§ 623(b)(7), 623(l)(1), 47 U.S.C. §§ 543(b)(7), 543(l)(2).

<sup>14</sup> Homes passed is defined as the total number of households capable of receiving cable television service.

<sup>15</sup> Penetration is defined as the ratio of the number of cable subscribers to the total number of households passed by the system.

<sup>16</sup> Premium services are cable networks provided by a cable operator on a per channel basis for an extra monthly fee. Pay-per-view services are cable networks provided by a cable operator on a per program basis. Pay-per-view service is a separate category from premium service. Communications Act §§ 623(b)(7), 623(l)(2), 47 U.S.C. §§ 543(b)(7), 543(l)(2).

<sup>17</sup> Channel capacity is defined as the maximum number of video channels that a system can carry simultaneously. Video channel capacity can be decreased on any given network simply by using bandwidth for other services such as Internet.

<sup>18</sup> Nielsen Media Research. Nielsen Media Research estimates the number of television households annually, and industry practice is to use this figure throughout the television broadcast season, which begins in September and ends in August of the following calendar year. Thus, the figure for TV households in June 1999 is the same as the figure for December 1998. In App. B, Tbl. B-1, we report the number of television households as of year-end 1998 and June 1999. These figures are from Paul Kagan Associates, and we use these estimates of television households for consistency with the remainder of reported figures in this section.

<sup>19</sup> Nielsen Media Research.

<sup>20</sup> See App. B, Tbl. B-1.

<sup>21</sup> *Id.*

The number of homes passed as a proportion of the number of TV households increased 0.1% from 96.5% in December 1997 to 96.6% in December 1998, remaining at 96.6% of TV households in the first half of 1999.<sup>22</sup>

20. **Subscribership.** Basic cable television subscribership grew from 64.9 million subscribers at the end of 1997 to 66.1 million subscribers at the end of 1998, an increase of 1.8%. It continued to grow to an estimated 66.7 million subscribers by June 30, 1999, a six month increase of approximately 0.9%.<sup>23</sup> Basic cable penetration also grew, increasing from 68.6% at the end of 1997 to 69.1% at the end of 1998. By the end of the first half of 1999, it grew to 69.4%.<sup>24</sup> The percentage of TV households subscribing to cable continued to increase, rising to 66.8% of all TV households by the end of 1998, and to 67% by the end of June 1999.<sup>25</sup> The number of homes subscribing to premium cable services increased in 1998 from 31.5 million homes at the end of 1997 to 35.3 million homes, an increase of 21.1%.<sup>26</sup> For the first half of 1999, premium cable subscribers increased again, reaching 35.9 estimated subscribers, a six month increase of 1.7%. The number of premium services to which homes are subscribing (known as "premium units") increased from 57.9 million premium units subscribed to by the end of 1998, to an estimated 59.2 million units subscribed to by the end of the first half of 1999, a 2.2% increase over six months.<sup>27</sup>

21. **Channel Capacity.** Cable operators continue to make significant capital expenditures to upgrade and rebuild cable infrastructure to increase channel capacity.<sup>28</sup> Cable operators are increasing their channel capacity by increasing their bandwidths and deploying digital technologies.<sup>29</sup> The increased bandwidth enables them to offer additional channels of audio and video services, as well as other services (e.g., Internet access and telephony). Cable operators indicate that they need to provide additional and advanced services to compete with DBS.<sup>30</sup> For example, Comcast notes that DBS operator Echostar recently announced that it will launch a satellite that will increase its channel capacity by 150 channels, enabling Echostar to offer consumers a 500-channel service.<sup>31</sup> Some cable operators currently provide

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<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> Traditionally, there is significant difficulty in getting access to accurate information with regard to channel capacity. However, the Commission has recently adopted a revised Form 325 for obtaining channel capacity figures. See 1998 Biennial Regulatory Review, "Annual Report of Cable Television Systems," Form 325, filed pursuant to Section 76.403 of the Commission's Rules, CS Docket No. 98-61, Report and Order, 14 FCC Rcd 4720 (1999).

<sup>29</sup> See 1998 Report, 13 FCC Rcd at 24294 ¶ 18.

<sup>30</sup> Comcast Reply Comments at 1.

<sup>31</sup> *Id.* at 10.

customers with more than 170 programming channels. Comcast digital cable now offers over 170 channels to 60% of its subscribers.<sup>32</sup> Comcast's digital offerings include 35 premium channels, 38 pay per view channels, 40 audio music channels, and an on-screen programming guide.<sup>33</sup> Cox has also increased its channel capacity, offering more than 200 video and audio channels in some of its service areas.<sup>34</sup> Through digital compression techniques, operators can also offer their customers improved reception and resolution quality.

22. According to one source, cable systems with a capacity of 30 or more channels accounted for 84.6% of cable systems in October 1998.<sup>35</sup> This represents 8,328 systems nationwide.<sup>36</sup> Systems with channel capacities of 54 channels or more accounted for 20.7% of cable systems in October 1998, or 2,040 systems.<sup>37</sup> In October 1999, cable systems with a capacity of 30 or more channels accounted for 85.4% of cable systems, or 8,236 systems.<sup>38</sup> Cable systems with channel capacities of 54 channels or more accounted for 22.4% of cable systems in October 1999, or 2,164 systems.<sup>39</sup> In addition, the same source now reports that 89 systems, or almost 1% of all cable systems now have a capacity of 91 or more channels with 8 systems having over 125 channels.<sup>40</sup>

23. In October 1998, 98.8% of all cable customers subscribed to systems with capacities of 30 channels or more.<sup>41</sup> Moreover, 61.5% of all subscribers were served by systems with capacities of 54 or more channels in October 1998.<sup>42</sup> In October 1999, 98.6% of all cable customers subscribed to systems

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<sup>32</sup> *Id.* at 2, 10.

<sup>33</sup> *Id.* at 16, 17.

<sup>34</sup> Cox Communications, Inc., *1998 Summary Annual Report*, Feb. 6, 1999, at 5.

<sup>35</sup> See App. B, Tbl. B-3. Use of October to October data is consistent with our *1997 and 1998 Reports*, and is the method Warren Publishing, Inc., uses to report channel capacity system statistics. Warren Publishing reports the percentage of all systems polled. For the purposes of this *Report*, the figures have been recalculated to report the percentage of systems responding to the Warren poll (*i.e.*, we subtract out the number of systems "not available" for response).

<sup>36</sup> See App. B, Tbl. B-3.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> Warren Publishing, Inc. Channel Capacity of Existing Cable Systems, *Television & Cable Factbook: Services* Volume No. 68, 2000 Edition (to be released). See also App. B, Tbl. B-5.

<sup>41</sup> See App. B, Tbl. B-4. Use of October to October data is consistent with our *1997 and 1998 Reports*, and is the method Warren Publishing, Inc., uses to report channel capacity system statistics. Warren Publishing reports the percentage of all systems polled. For the purposes of this *Report*, the figures have been recalculated to report the percentage of systems responding to the Warren poll (*i.e.*, we subtract the number of systems "not available" for response).

<sup>42</sup> See App. B, Tbl. B-4.

with capacities of 30 channels or more, and 64.2% of all subscribers were served by systems with capacities of 54 or more channels in October 1999.<sup>43</sup> In addition, 4.8% of all subscribers are reportedly served by systems with capacities of 91 or more channels.<sup>44</sup>

24. **Viewership.** As reported last year, viewership shares of non-premium cable networks has grown significantly over the past decade, while viewership shares of broadcast television stations has steadily declined. This trend has continued over the past year. Audience share statistics for Monday through Sunday, 24 hours a day,<sup>45</sup> show that non-premium cable audience shares rose 8.8% from an average 38.8 share<sup>46</sup> from July 1997 through June 1998, to an average 42.2 share between July 1998 and June 1999.<sup>47</sup> Monday through Sunday, 24 hours a day, broadcast television audience shares decreased 5% from an average 64.1 share from July 1997 through June 1998, to an average 60.9 share between July 1998 and June 1999.<sup>48</sup>

25. **Cable Networks.** In 1998, the number of basic cable networks increased from 131 to 139, a 6.1% increase.<sup>49</sup> During the first half of 1999, the number of basic cable networks increased to 141, a 1.4% half-year increase.<sup>50</sup> The number of premium networks increased from 14 to 18, a 28.6% increase from the end of 1997 to the end of 1998, and increased by four channels during the first half of 1999, reaching 22, a 22.2% half-year increase.<sup>51</sup> The number of pay-per-view ("PPV") networks increased in 1998 from six to ten networks, but in the first half of 1999 PPV networks decreased to eight, a half year decrease of 20%.<sup>52</sup>

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<sup>43</sup> *Id.*

<sup>44</sup> Warren Publishing, Inc. Channel Capacity of Existing Cable Systems, Television & Cable Factbook: Services Volume No. 68, 2000 Edition (to be released).

<sup>45</sup> The audience statistics reported here are Nielsen Media Research measurements of television viewing 24 hours a day for an entire week (*i.e.*, Monday through Sunday).

<sup>46</sup> A share is the percent of all households using television during the time period that are viewing the specified station(s) or network(s). The sum of reported audience shares exceeds 100% due to multiple set viewing.

<sup>47</sup> Nielsen Media Research, *Nielsen Television Index: Usage/Viewing Source Share Trends*, Sept. 1999. The *Nielsen Television Index* reports non-premium, or basic, cable viewership as "cable origination" viewing shares and premium cable viewership as "pay" shares. According to Nielsen, "cable origination" includes basic cable service and pay-per-view (defined as payment on a per-program basis), and "pay" includes only the premium tier (defined as payment on a per-channel basis for networks, such as HBO and Showtime).

<sup>48</sup> Nielsen Media Research, *Nielsen Television Index: Usage/Viewing Source Share Trends*, Sept. 1999. "Broadcast" shares include network affiliates, independent, and public broadcast stations.

<sup>49</sup> These statistics regarding types of cable networks are from *NCTA Cable Television Developments*, Summer 1999. These totals differ from those reported in the Vertical Integration Section of this report. In that section, the information on cable networks is from *NCTA Developments* and additional sources. See App. B, Tbl. B-6.

<sup>50</sup> See App. B, Tbl. B-5. See also App. D, Tbls. D-1 through D-4.

<sup>51</sup> See App. B, Tbl. B-6.

<sup>52</sup> *Id.*

In the first half of 1999, the number of networks classified as combined increased from seven to ten, or 42.9%.<sup>53</sup>

26. **Programming Costs.** Programming networks incurred expenses of \$4.9 billion for producing and acquiring programming in 1998, a 13.9% increase over 1997. Reported estimates indicate that these programming network expenses will total \$5.7 billion in 1999, a 16.3% increase over 1998.<sup>54</sup> License fees paid by cable system operators to basic cable network programmers increased 14.6%, from approximately \$4.8 billion in 1998 to \$5.5 billion in 1999.<sup>55</sup> Analysts estimate that in 2000 fees will increase by an additional 10.9% to reach \$6.1 billion.<sup>56</sup> Most cable operators pass increased programming costs along to subscribers as allowed under the Commission's rules.<sup>57</sup>

27. Other programming expenses incurred by cable operators include copyright fees for broadcast signal carriage pursuant to Section 111 of the Copyright Act.<sup>58</sup> As of November 2, 1999,<sup>59</sup> copyright fees paid by cable system operators for broadcast signal carriage for the period July 1, 1997, to December 31, 1997, were \$77.8 million, and for the period January 1, 1998, to June 30, 1998, fees collected were \$53.6 million.<sup>60</sup> For the period July 1, 1998, through December 31, 1998, fees collected were \$54 million, and for the period January 1, 1999, to June 31, 1999, fees collected were \$53.4 million.<sup>61</sup> The decline in fees collected for the first period of 1998 is due largely to the changed status of WTBS from a superstation to a cable network. As such, copyright fees can no longer be collected for network TBS.

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<sup>53</sup> *Id.*

<sup>54</sup> Paul Kagan Assocs., Inc., *Basic Cable Network Economics (1983-2009)*, Cable Program Investor, July 14, 1999, at 4.

<sup>55</sup> *Id.* at 4. License fees are the fees charged by a cable network to allow an operator to deliver the network's programming. License fees reported here do not include superstation license fees, common carrier payments, and copyright fees.

<sup>56</sup> Paul Kagan Assocs., Inc., *Basic Cable Network Economics (1983-2009)*, Cable Program Investor, July 14, 1999, at 4.

<sup>57</sup> 47 C.F.R. § 76.922(f)(6).

<sup>58</sup> Copyright Act, 17 U.S.C. § 111 *et seq.*

<sup>59</sup> Copyright fees, though technically due on a specific date, are collected on a rolling basis. We report the most current figures available.

<sup>60</sup> Copyright Office, Library of Congress, *Licensing Division Report of Receipts*, Nov. 2, 1999. Date of "collection" indicates the date the Copyright Office has deposited payments made by cable operators. Payments are due within a certain time frame around the copyright period, however, operators submit payments on a continuing basis.

<sup>61</sup> Copyright Office, Library of Congress, *Licensing Division Report of Receipts*, Nov. 2, 1999.

## 2. Financial Performance

28. Data concerning cable industry revenue, cash flow, and stock prices indicate that the cable industry remained strong in 1998 and in the first half of 1999.<sup>62</sup>

29. **Cable Industry Revenue.** Annual cable industry revenue grew 7.5% in 1998 over 1997, reaching \$32.7 billion. By the end of 1998, revenue per subscriber grew 5.5% to \$499.40 per subscriber per year, or \$41.62 per subscriber per month. Analysts estimate that 1999 year-end total revenue will reach \$35.3 billion, an estimated 8% increase,<sup>63</sup> and that revenue per subscriber per year will reach approximately \$529, or \$44 per subscriber per month.<sup>64</sup>

30. From June 1997 through June 1998, nationwide cable rates rose more than four times the rate of inflation.<sup>65</sup> Between June 1998 and June 1999, cable prices still increased by 3.8% compared to a 2% increase in the Consumer Price Index ("CPI"), which is used to measure general price changes.<sup>66</sup> A portion of these rate increases is attributable to capital expenditures for the upgrading of cable facilities, an increased number of video and nonvideo services offered, and increased programming costs. In addition, the increase in labor costs in the communications industry exceeds the increase in labor costs for all industries combined by 1.9%.<sup>67</sup>

31. When cable system revenue is classified by source, advanced video service revenues (analog and digital) show the greatest amount of growth in 1999, as was also the case in 1998.<sup>68</sup> Revenues for advanced video services increased 117.3% in 1998, reaching \$452 million, as operators continued to roll out new services.<sup>69</sup> Analysts estimate that revenues from advanced services will more than double by the

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<sup>62</sup> See Paul Kagan Assocs., Inc., *Cable MSO Stocks*, Cable TV Investor, Sept. 3, 1998, at 6. As of August 1998, the Kagan MSO Index consisted of: Adelphia, Cable Michigan, Cablevision, Century Communications, Comcast Communications, Cox Communications, Jones tracking stock A, MediaOne Group, TCA Cable, TCI tracking stock A, and Canadian MSO Rogers Communications tracking stock B. As of November 1998, Cable Michigan was dropped from the Kagan MSO Index. As of March 1999, TCI tracking stock A was dropped from the Index. In April, AT&T was added to the Index. As of August 1999, TCA was dropped from the Index, while Insight Communications was added.

<sup>63</sup> See App. B, Tbl. B-7.

<sup>64</sup> *Id.*

<sup>65</sup> Bureau of Labor Statistics, *Consumer Price Index Data*, <http://stats/bls.gov>.

<sup>66</sup> *Id.*

<sup>67</sup> NCTA Comments at 36.

<sup>68</sup> The "advanced video services" category includes both analog video services and digital video services. Advanced analog services provide users with certain two-way capabilities such as PPV and near-video-on-demand ("NVOD"). Digital video services can provide superior video picture quality and increased channel capacity. Both digital and advanced analog services require the use of a set-top box. See also fn. 12 *supra*.

<sup>69</sup> See App. B, Tbl. B-7.

end of 1999, reaching an estimated \$1 billion.<sup>70</sup> In the more traditional revenue-generating sectors of cable, the home shopping sector showed the greatest increase, generating \$187 million in annual revenue in 1998, a 23% increase over the previous year.<sup>71</sup> Industry analysts predict that home shopping revenue will increase 15% in 1999 to an estimated \$215 million.<sup>72</sup> Equipment and installation revenue earned by MSOs increased 13.4% in 1998, from \$2.3 billion in annual revenue in 1997 to an estimated \$2.6 billion in 1998. Industry analysts predict this revenue sector will increase to an estimated \$2.8 billion by year-end 1999.<sup>73</sup> In 1998, pay-per-view revenue declined by 23.8% and local advertising revenue declined by 3.9%.<sup>74</sup> Annual revenue from premium channels increased from \$5 billion in 1997 to \$5.1 billion in 1998, a 2.7% increase, and is expected to increase only 2% to \$5.2 billion by year-end 1999.<sup>75</sup> Revenue from the basic service tier ("BST") and from the cable programming service tier ("CPST") combined grew from \$20 billion in 1997 to \$21.8 billion in 1998, a 9.1% increase, and is expected to increase to \$23.2 billion by year-end 1999.<sup>76</sup> On March 31, 1999, rate regulation for CPST ceased under the 1996 Act.<sup>77</sup>

32. **Cable Industry Cash Flow.** Cash flow is used to assess the financial position of cable firms. Cash flow is generally expressed as "EBITDA" (earnings before interest, taxes, depreciation, and amortization). Financial analysts reported that industry-wide cash flow increased 10.5% between the end of 1997 and the end of 1998, from \$13.4 billion to \$14.8 billion.<sup>78</sup> Cash flow will increase an estimated 9.1%, reaching \$16.1 billion by year-end 1999.<sup>79</sup> In 1998, the cable industry generated \$225.9 in annual cash flow per subscriber, \$17.63 higher than the \$208.24 per subscriber generated in 1997.<sup>80</sup> Analysts estimate that in 1999, cash flow per subscriber per year will increase by \$15.81, reaching \$241.68.<sup>81</sup> The ratio of

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<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

<sup>73</sup> *Id.*

<sup>74</sup> See App. B, Tbl. B-7. Pay-per-view revenue varies from year-to-year based on the number and type of events available for purchase. While we report that revenue from PPV over cable has decreased between 1997 and 1998, one study reporting PPV revenue across all technologies (cable, DBS, etc.) states that PPV revenue has increased 700% between 1990 and 1999. See Showtime Event Television, *Pay Per View Decade In Review*, Nov. 30, 1999, at 5.

<sup>75</sup> See App. B, Tbl. B-7.

<sup>76</sup> *Id.*

<sup>77</sup> 47 U.S.C. § 543 (c)(3), (c)(4).

<sup>78</sup> See App. B, Tbl. B-7.

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

cash flow to revenue (“cash flow margin”) increased from 44% in 1997 to 45.2% in 1998, and is expected to increase to 45.7% in 1999.<sup>82</sup>

33. **Stock Prices.** Between June 1998 and June 1999, stock market values of cable MSOs, as represented by the Kagan MSO Index, grew steadily.<sup>83</sup> By comparison, during the same period, the Standard and Poor’s Index of 500 widely held stocks (“S&P 500”)<sup>84</sup> and the Dow Jones Industrial Average (“Dow Jones”)<sup>85</sup> grew more modestly.<sup>86</sup> All three indices grew steadily during each of the four quarters beginning July 1, 1998. However, the Kagan MSO Index grew more rapidly from the end of the second quarter 1998 through the end of the second quarter 1999.<sup>87</sup> In May 1999, cable stock valuations reached historically high levels.<sup>88</sup>

34. Analysts cite several cable-specific factors that contributed to the overall growth of cable stock valuations over the year-ended June 1999. Among the most significant were the end of CPST rate regulation on March 31, 1999, the transactions involving Paul Allen’s Charter Communications, and other proposed mergers and acquisitions including AT&T-MediaOne, Cox-TCA, and Adelphia-Century.<sup>89</sup> Analysts note that such consolidations can offer certain market efficiencies, such as standardization, and centralized brand and customer service management.<sup>90</sup>

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<sup>82</sup> *Id.* Cash flow margin is a commonly used financial analysis tool for determining a cable operator’s operating efficiency, profitability, and liquidity.

<sup>83</sup> Paul Kagan Assocs., *Kagan Cable Average v. Market Competition*, Cable TV Investor Data Roundup, Oct. 23, 1998, at 4; Apr. 27, 1999, at 3; Aug. 19, 1999, at 4; Paul Kagan Assocs., *Money Market Digest*, Cable TV Investor, Aug. 10, 1998, at 16; Sept. 2, 1998, at 8; Sept. 11, 1998, at 12; Oct. 23, 1998, at 16; Nov. 11, 1998, at 16; Dec. 18, 1998, at 20; Mar. 3, 1999, at 24; Mar. 29, 1999, at 20; Apr. 27, 1999, at 16; May 14, 1999, at 16; June 25, 1999, at 20 (“Kagan Cable Average Oct 1998 – June 1999”).

<sup>84</sup> The Standard and Poor’s Index of 500 widely held stocks is a stock index that tracks a compilation of 500 industrial, transportation, financial, and utility stocks.

<sup>85</sup> The Dow Jones Industrial Average is a price-weighted average of 300 actively traded, nationally known company stocks that have a long record of profit growth and dividend payment and a reputation for quality management, products, and services. These stocks are primarily industrial stocks, but also include service-oriented firms.

<sup>86</sup> Kagan Cable Average Oct 1998 – June 1999.

<sup>87</sup> *Id.*

<sup>88</sup> Paul Kagan Assocs., *The Public Market*, The Cable TV Financial Databook 1999, Aug. 1999, at 98; *Marketplace*, Cable World, June 28, 1999, at 38.

<sup>89</sup> Paul Kagan Assocs., *The Public Market*, The Cable TV Financial Databook 1999, Aug. 1999, at 98.

<sup>90</sup> Raymond Lee Katz, *Cable R&R: Investment Risk & Reward in Cable Broadband*, Bear Stearns, May 1999, at 8 (“Katz, *Cable R&R*, May 1999”).

35. Several market analysts believe cable stocks are not yet fully valued.<sup>91</sup> Some assert that the stock market is ignoring the positive impact of new services such as video on demand, high-speed data, telephony, and multiple product packaging.<sup>92</sup> Other analysts, however, indicate that deployment of these new services could be the largest single fundamental risk to cable stock valuations.<sup>93</sup> Some analysts assert that the benefits of successful deployment of new services will likely drive cable stocks in 2000, improving equity values by as much as 20% to 30%.<sup>94</sup>

### 3. Capital Acquisition and Disposition

36. *Industry Financing.* The cable industry has typically relied on combinations of private and public financing, with the exact distribution of these combinations varying greatly from year to year. These year to year fluctuations in financing sources appear to be based on the availability of acceptable financing rates through private investors or capital lending institutions.

37. Between July 1, 1998, and December 31, 1998,<sup>95</sup> the cable industry acquired \$3 billion in private debt financing (i.e., financing received from banks, insurance companies, and other institutional investors).<sup>96</sup> In the second half of 1998, the industry acquired \$998 million in net new public debt issue.<sup>97</sup> The industry obtained its remaining financing from individuals, private corporations, venture capital firms, investment banks, and public equity offerings (i.e., stock markets). There was no significant financing activity in the private markets in the second half of 1998, but public markets produced \$250.3 million.<sup>98</sup>

38. Between January 1999 and June 1999, the industry acquired \$13.6 billion in private debt, compared with \$1.5 billion for the same period in 1998.<sup>99</sup> Public debt also increased between January 1999 and June 1999, when compared to the same period in 1998.<sup>100</sup> Net new public debt issued for the first half of 1999 reached approximately \$8.8 billion, while debt issued for the same period in 1998 reached

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<sup>91</sup> Katz, *Cable R&R*, May 1999, at 8; Richard Bilotti, Marc Nabi, and Gary Lieberman, *Cable Television/Satellites: 1Q99 Review and 2Q99 Preview*, Morgan Stanley Dean Witter, Apr. 12, 1999, at 1.

<sup>92</sup> Katz, *Cable R&R*, May 1999, at 8; Raymond Lee Katz, *The Model Is Working*, Bear Stearns, Aug. 1999, at 1, 5 (“Katz, *Model*, Aug. 1999”).

<sup>93</sup> Katz, *Model*, Aug. 1999, at 1, 5.

<sup>94</sup> Katz, *Cable R&R*, May 1999, at 8.

<sup>95</sup> The 1998 data may not agree with data for the same date(s) in our *1998 Report* because the data have been revised by the source.

<sup>96</sup> Paul Kagan Assocs., Inc., *Cable TV Financing Snapshot*, Cable TV Finance, Sept. 9, 1998, at 7; Oct. 13, 1998, at 6; Nov. 20, 1998, at 5; Dec. 7, 1998, at 9; Dec. 31, 1998, at 6; Dec. 31, 1998, at 5.

<sup>97</sup> *Id.*

<sup>98</sup> *Id.*

<sup>99</sup> Paul Kagan Assocs., Inc., *June 1999 Cable Financing Snapshot*, Cable TV Finance, June 30, 1999, at 8.

<sup>100</sup> *Id.*

approximately \$4.4 billion.<sup>101</sup> Private equity generated from January 1999 through June 1999 was \$27.5 million, whereas private debt generated during the first six months of 1998 reached \$135.5 million.<sup>102</sup>

39. **Capital Expenditures/Capital Investment.** In 1998, the cable industry spent a total of \$7.7 billion on the construction of new plant, upgrades, rebuilds, new equipment, and maintenance of new and existing equipment.<sup>103</sup> This represents a 13.2% increase over the \$6.8 billion spent in 1997 for investments in plant and equipment, and for the expense of maintaining these investments.<sup>104</sup> Analysts expect that in 1999, operators will spend an estimated \$10.8 billion by year's end, an increase of 40.9% over 1998.<sup>105</sup> Of the \$7.7 billion spent in 1998, approximately \$981 million was for maintenance expense, \$600 million for new builds,<sup>106</sup> \$1.8 billion for rebuilds,<sup>107</sup> \$2.5 billion for upgrades,<sup>108</sup> and \$1.8 billion for equipment.<sup>109</sup> Upgrades and rebuilds (i.e., the improvement of existing plant) continue to account for most of the capital expenditures made in the past few years, including projections for year-end 1999. Between 1995 and 1998, investment in the improvement of existing plant has increased by an average of 20% each year.<sup>110</sup> Operators invested \$3.7 billion in 1997, and \$4.3 billion in 1998.<sup>111</sup> By year-end 1999, analysts expect expenditures for rebuilds and upgrades to increase approximately 67%, to \$7.2 billion.<sup>112</sup>

40. In 1998, many of the large MSOs spent more than half billion dollars each on upgrades and rebuilds. In the case of three of the MSOs, some or all of the expenditures in 1998 fulfilled commitments made by those MSOs pursuant to social contracts with the Commission.<sup>113</sup> In addition, over the past four

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<sup>101</sup> *Id.*

<sup>102</sup> *Id.*

<sup>103</sup> Paul Kagan Assocs., Inc., *Estimated Capital Flows in Cable TV*, Cable TV Financial Databook, Aug. 1999, at 149.

<sup>104</sup> *Id.*

<sup>105</sup> *Id.*

<sup>106</sup> "New builds" are the construction of new cable plant where none existed before.

<sup>107</sup> "Rebuilds" are improvements to existing systems that do not retain much of the old system plant and equipment. Instead, they consist of mostly new plant and equipment.

<sup>108</sup> "Upgrades" are improvements to existing cable systems that do not require the replacement of the entire existing plant and equipment.

<sup>109</sup> Paul Kagan Assocs., Inc., *Estimated Capital Flows in Cable TV*, Cable TV Finance, May 28, 1999, at 2.

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

<sup>113</sup> The social contract with Time Warner committed that MSO to spend \$4 billion on upgrades over a five-year period and to provide 100% of its subscribers with 550 MHz service and 50% of its subscribers with 750 MHz service. *Social Contract for Time Warner*, 11 FCC Rcd 2788 (1995). Time Warner's annual social contract (continued....)

years Comcast has invested more than \$2 billion in system upgrades, an average of one half billion dollars per year.<sup>114</sup> In 1999, Cox will invest approximately \$650 million in upgrades.<sup>115</sup> Over the past four years, MediaOne has invested about \$4.1 billion in upgrading its plant, an average of \$1 billion each year.<sup>116</sup> MediaOne estimates that it will have invested in excess of \$7 billion by year-end 2000.<sup>117</sup> AT&T states that it has invested billions for network upgrades since acquiring TCI for \$48 billion.<sup>118</sup> Cablevision has recently upgraded and rebuilt its systems, investing hundreds of millions of dollars.<sup>119</sup>

41. Expenditures for upgrades have resulted in increased system capacity. For example, Cox estimates that by year-end 1999, 65% of its plant will be upgraded to 750 MHz with two-way capacity, and an additional 11% of its systems upgraded to 550 MHz.<sup>120</sup> Comcast estimates that by year-end 1999, more than 85% of its customers will be receiving service at greater than 550 MHz and more than 63% will be receiving service at 750 MHz.<sup>121</sup> In the first half of 1999, RCN added an average of 7.1 route miles of fiber optic network daily, in addition to other network upgrades.<sup>122</sup>

(Continued from previous page)

implementation report indicates that the MSO is on track, having invested \$2.9 billion in the first three years of the contract. Letter from Stuart F. Feldstein to Deborah A. Lathen, Chief of the Cable Services Bureau, March 29, 1999. The social contract with MediaOne commits that MSO to spend \$1.7 billion on upgrades over a four-year period and also to provide 100% of its subscribers with 550 MHz service and 50% of its subscribers with 750 MHz service. *Social Contract for Continental Cablevision, Inc.* (subsequently MediaOne), 13 FCC Rcd 11118 (1996). By the end of 1998, MediaOne reported that it surpassed its financial commitment under the social contract, having spent more than \$2.5 billion during that period, and that it expected to fulfill its service levels commitment within the year. MediaOne Annual Progress Report to the Commission, April 7, 1999. The third MSO, Comcast reported that by March 31, 1999, it also fulfilled its social contract commitments of upgrading 80% of its subscribers to 550 MHz service and 60% to 750 MHz service. *Social Contract for Comcast Cable Communications, Inc.*, 13 FCC Rcd 3612 (1997); Third Annual Report of Comcast Cable, October 14, 1999.

<sup>114</sup> Comcast Reply Comments at 4, 29, 30.

<sup>115</sup> Letter from James Hatcher, General Counsel, Cox Communications, Inc., to Anne Levine, Federal Communications Commission, Sept. 20, 1999 ("Hatcher Letter").

<sup>116</sup> *Transfer of Control of FCC Licenses MediaOne Group, Inc. to AT&T Corp.*, CS Docket No. 99-251, Transfer of Control of Applications, July 7, 1999 at 15 ("AT&T/MediaOne Application").

<sup>117</sup> MediaOne Comments at 15.

<sup>118</sup> AT&T Comments at 22.

<sup>119</sup> Cablevision Reply Comments at 2.

<sup>120</sup> Hatcher Letter.

<sup>121</sup> *Id.*

<sup>122</sup> RCN Reply Comments at 2. RCN is a competitive local exchange carrier ("CLEC") that provides video primarily as an open video system ("OVS") operator in the New York, New Jersey, Philadelphia, Boston, and Washington, D.C. areas. RCN also provides cable television service in most of its OVS markets. RCN Comments, Summary, at i-ii.

#### 4. Other Performance Indicators

42. **Cable System Transactions.** The number of mergers, acquisitions, and exchanges between MSOs has fluctuated over the past few years. The number of systems sold increased between 1997 and 1998 from 110 to 114 systems.<sup>123</sup> One data source recorded 60 transactions from January 1999 through June 1999.<sup>124</sup> Many of these transactions are the result of MSOs' ongoing efforts to regionalize, or "cluster," their operations for the economic advantages to be gained by such aggregation.<sup>125</sup> The total number of subscribers affected by system transactions and the average size (measured by the number of subscribers per system) of systems sold continues to vary greatly from year to year.

43. The average system size increased 74.9% from 112,616 subscribers per system sold in 1997 to 197,001 subscribers per system sold in 1998.<sup>126</sup> Between January and June 1999, the average number of subscribers per system transaction was 258,535, a half-year increase of over 31.2%.<sup>127</sup> The total number of subscribers affected by system transactions in 1998 increased 81.3%, from nearly 12 million subscribers in 1997 to approximately 22 million subscribers in 1998.<sup>128</sup> Between January 1999 and June 1999, about 15 million subscribers were affected by system transactions.<sup>129</sup> The total dollar value of transactions increased 191.1% from \$22.2 billion at year-end 1997 to 64.6 billion at year-end 1998.<sup>130</sup> The average dollar value per subscriber of transactions was approximately \$3,900 between January 1999 and June 1999.<sup>131</sup>

44. **Overbuilding.** From 1995, when overbuild activity began to increase, to 1999, competing franchises have been awarded covering 210 communities in 28 states, with the potential to pass 8.3 million homes.<sup>132</sup> However, not all of the franchises awarded are currently operational. After a franchise is awarded, it can take a significant amount of time for the franchisee to build, or gain access to, a network over which to provide video service. For example, as of June 1999, Ameritech held 108 franchises but offered service in only 90 communities. Ameritech has the potential to pass 1.7 million homes in these 108

<sup>123</sup> This includes all systems bought and sold. See App. B, Tbl. B-9.

<sup>124</sup> Some transactions recorded on this table have been announced to the public but may not actually take place. Most recorded transactions do take place, although a few each year do not. See App. B, Tbl. B-9.

<sup>125</sup> See ¶¶ 161-165 *infra*.

<sup>126</sup> See App. B, Tbl. B-9.

<sup>127</sup> *Id.*

<sup>128</sup> *Id.*

<sup>129</sup> *Id.*

<sup>130</sup> *Id.*

<sup>131</sup> *Id.*

<sup>132</sup> Paul Kagan Assocs., Inc., *Cable TV Franchising Competition, 1995-1998 Franchise Awards*, Cable TV Financial Databook, 1999, at 87-90.

franchise areas. As of August 1999, Ameritech had increased its subscribership to 250,000, from 150,000 subscribers in August 1998.<sup>133</sup>

45. In addition, BellSouth offers service in all or parts of 12 of its 21 franchise areas. GTE offers service in three of its nine franchise areas. U S West offers service in four of its five franchise areas, and SNET offers service in 12 areas covered by its statewide franchise in Connecticut. These LEC overbuilders are competing with MSOs such as TCI, Time Warner, Jones Intercable, Comcast, Cox, MediaOne, and Rifkin.

46. Among the smaller firms awarded competing franchises is KnoLogy Holdings, Inc., which holds 21 franchises<sup>134</sup> in four southeastern states.<sup>135</sup> KnoLogy is competing with incumbent cable operators, such as Charter Communications, TCI, Jones Intercable, Comcast, Time Warner, and Marcus Cable. It offers its customers "one stop shopping" for cable service, high-speed Internet access, and local and long distance telephone connections.<sup>136</sup> Buckeye CableSystem (Buckeye) offers service in 17 of its 19 Ohio franchise areas, and is constructing systems in the remaining two franchise areas of Waterville and Northwood, Ohio. Buckeye is also negotiating for a twentieth franchise in nearby Bedford, Michigan. With the Waterville, Northwood, and Bedford systems, Buckeye would compete head-to-head with incumbent FrontierVision.<sup>137</sup> Buckeye intends to offer cable television service, cable-modem service, and local telephone service through cable.

47. Since our 1998 Report, other planned overbuilds include Intertech Private Cable, which will compete head-to-head with Adelphia in Kenmore, New York. It will offer ten more channels than Adelphia at a rate that is \$5 less than Adelphia's current rate. 21<sup>st</sup> Century has invested \$250 million in fiber network in a portion of Chicago, where it offers cable television, Internet access, and telephone service.<sup>138</sup> 21<sup>st</sup> Century plans to propose overbuilds in other portions of Chicago to compete head-to-head with AT&T. As of June 30, 1999, RCN passed 425,000 homes and served 270,000 OVS and cable subscribers. RCN provides service to areas surrounding the City of Boston, the New York City metropolitan areas, and the surrounding areas of Washington, D.C.<sup>139</sup> RCN plans to extend its operations to San Francisco in late 1999 and to Philadelphia sometime in 2000. RCN offers Internet access, and local and long distance telephone, as well as video services.<sup>140</sup>

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<sup>133</sup> Ameritech Comments at 1.

<sup>134</sup> KnoLogy Facts, Oct. 1998.

<sup>135</sup> Charles Haddad, *KnoLogy Lays Low, Dreams Big*, Atlanta Journal-Constitution, Oct. 21, 1998.

<sup>136</sup> John P. McDermott, *Getting Connected*, Charleston Post and Courier, Oct. 26, 1998, at 10-D.

<sup>137</sup> Joe Estrella, *Buckeye Will Take On FrontierVision*, Multichannel News, Feb. 15, 1999, at 1.

<sup>138</sup> Linda Haugsted, *Adelphia Has New Rival Near Buffalo*, Multichannel News, Apr. 12, 1999, at 22.

<sup>139</sup> See ¶¶ 129-130 *infra*.

<sup>140</sup> Alan Breznick and Joshua Cho, *Vulcan Upsets Cable Paradigm*, Cable World, Oct. 11, 1999, at 53.

48. New municipal overbuild activity continues to grow. In Wadsworth, Ohio, the city's system had 2,228 customers as of March 1, 1999.<sup>141</sup> The city of Lebanon, Ohio, began serving cable subscribers on March 8, 1999. Both of these Ohio systems are competing with the incumbent cable operator, Time Warner.<sup>142</sup> Among municipalities planning overbuilds are Little Rock, Arkansas, and the surrounding communities of North Little Rock, Jacksonville, Maumelle, and Sherwood. A municipal consultant has recommended that the communities build a state-of-the-art, two-way system that would provide 88 analog channels, 28 digital channels, and high-speed Internet service. Local government officials report that these communities are likely to build such a system to compete with incumbent cable operator, Comcast. In addition, they have indicated that they plan to compete by providing better service at a lower price.<sup>143</sup> Other communities, such as Palo Alto, California, Hastings, Nebraska, and Spencer, Iowa, are also considering overbuilding.

49. An indication that an overbuilt system may be in operation occurs when an incumbent provider asks the Commission to determine that effective competition exists within its service area. Such a determination exempts the cable operator from regulation of its rates. Since 1995, the Commission has granted 63 petitions for determination of effective competition status on the basis of overbuild competition. As we have done in recent reports, we again provide a study of selected areas where incumbent cable operators face head-to-head effective competition.<sup>144</sup> Our case-by-case analysis shows that such competition often results in lower prices, additional channels at the same monthly rate, improved services, or additional nonvideo services.<sup>145</sup>

50. Several commenters seeking to overbuild incumbent cable systems cite barriers to entry into the video distribution marketplace.<sup>146</sup> In particular, CCC, a coalition of wireline and wireless overbuilders, raises a number of issues regarding laws and regulations that it claims inhibit its members' ability to introduce competitive cable systems.<sup>147</sup> CCC contends that potential overbuilders have inadequate access to programming because of exclusive contracts between cable operators and unaffiliated programmers and the failure of the program access law to cover programming distributed over terrestrial facilities.<sup>148</sup> It argues that its members face discriminatory programming prices because programmers offer

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<sup>141</sup> Linda Haugsted, *City Happy with Its System in Wadsworth*, Multichannel News, Mar. 8, 1999, at 24.

<sup>142</sup> Monica Hogan, *Municipal Overbuild Hits 2<sup>nd</sup> Ohio Town*, Multichannel News, Mar. 8, 1999, at 24.

<sup>143</sup> Mike Farrell, *Little Rock Ready to Roll on Cable*, Multichannel News, Jan. 4, 1999, at 3.

<sup>144</sup> See ¶¶ 217-243 *infra*.

<sup>145</sup> See ¶¶ 244-248 *infra*.

<sup>146</sup> See, e.g., ¶¶ 77-80, 91, 132-134 *infra*.

<sup>147</sup> Members of CCC include: Ameritech New Media, Inc.; BellSouth Entertainment, Inc.; DTG McLeod USA; Hiawatha Broadband Communications; Knology Holdings, Inc.; Lexcom Cable; Mainstreet Communications; OmniMedia Associates; RCN Corporation; Seren Innovations, Inc.; 21<sup>st</sup> Century Telecom Group, Inc.; and Unitel Communications. See CCC Reply Comments.

<sup>148</sup> *Id.* at 9-17.

discounts only to the largest MSOs.<sup>149</sup> In addition, CCC claims that cable operators use a number of tactics to hinder competition in MDUs, including: (a) forcing competitors to postwire MDUs with a duplicate set of wiring; (b) refusing to remove or relocate lock boxes that prevent access to existing home wiring; and (c) securing perpetual, exclusive contracts to serve MDUs.<sup>150</sup>

## 5. Provision of Advanced Broadband Services

51. Since our last report, cable operators have been upgrading their networks and offering new services at a rapid pace.<sup>151</sup> Some analysts estimate that most cable plant upgrades will be completed over the next two years.<sup>152</sup> With these improvements to cable infrastructure, the marketing of new services such as digital video, telephony, and data access, is projected to grow significantly over the next several years.<sup>153</sup>

52. *Digital Video Services.* Digital signal transmission, as compared to the analog signal transmission historically used in cable systems, can provide superior video picture quality and increased channel capacity through compression techniques.<sup>154</sup> Accordingly, digital consumers can receive clearer video pictures, as well as more programming options and advanced service offerings such as electronic programming guides and video-on-demand.<sup>155</sup> Some analysts anticipate market trials of video-on-demand through digital set-top boxes in late 1999,<sup>156</sup> but predict that video-on-demand will not be offered in commercial rollouts by operators until at least 20% of all cable subscribers have digital set-top boxes.<sup>157</sup>

53. Subscriber reception of digital video signals requires a set-top device to decompress and decode incoming signals and to translate the digital signals into the analog signals used by current television

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<sup>149</sup> *Id.* at 17-23.

<sup>150</sup> *Id.* at 23-28.

<sup>151</sup> Jessica Reif Cohen and Nathalie Brochu, *Cable Television: Q2 Preview*, Merrill Lynch, July 16, 1999, at 8 (“Cohen and Brochu, *Q2 Preview*, July 16, 1999”).

<sup>152</sup> *Id.*

<sup>153</sup> *Id.*

<sup>154</sup> See *1998 Report*, 13 FCC Rcd at 24312 ¶ 48. Digital video is more likely to maintain signal integrity than analog video. As video signals travel from the cable operator to the subscriber, signals risk interference from equipment leaks or other hardware factors. Digital signals are composed of discrete codes of information and carry error-correcting codes that can regenerate any lost data. Analog signals can be amplified, but little can be done to correct any distortion that may occur to the signal through transmission. In allocating bandwidth to digital video, an operator must determine the number of analog or otherwise unused channels to devote to digital video. In attempting to maximize the number of digital program channels per available bandwidth, operators have tried to maximize digital compression ratios.

<sup>155</sup> See <http://www.cox.com/DigitalTV>; [http://www.cablevision.com/cvhome/frame/fcatv\\_a.htm](http://www.cablevision.com/cvhome/frame/fcatv_a.htm). See also Denton Kanouff, *Building a Compelling Digital-Service Offering*, *Multichannel News*, Jan. 18, 1999, at 65.

<sup>156</sup> Cohen and Brochu, *Q2 Preview*, July 1999, at 27.

<sup>157</sup> Katz, *Cable R&R*, May 1999, at 60.

sets. Presently, cable operators provide set top devices to the consumer for a monthly fee, though these devices will soon become available to consumers through retail outlets.<sup>158</sup>

54. As of December 1998, there were more than 1.2 million digital cable subscribers.<sup>159</sup> Some analysts estimate that by year-end 1999, there will be as many as 4.1 million digital cable subscribers.<sup>160</sup> Cox is marketing its digital product in seven states and has 144,116 subscribers.<sup>161</sup> Cox offers three digital packages: movie, sports and information, and variety.<sup>162</sup> Customers may purchase one package for \$5.95 or all three for \$10.95.<sup>163</sup> As of August 1999, Comcast served approximately 285,000 subscribers and expects to serve between 400,000 to 450,000 by the end of 1999.<sup>164</sup> Comcast offers digital video service in seven states.<sup>165</sup> Adelphia offers digital video in 25 of its systems.<sup>166</sup> AT&T offers digital video in 22 states.<sup>167</sup> MediaOne offers digital service in ten states, passing more than three million homes.<sup>168</sup>

55. **Internet and High-Speed Data Services.** Currently, most Americans access the Internet using telephone lines at speeds of less than 56 kilobits-per-second (“Kbps.”)<sup>169</sup> In January 1999, 65% of

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<sup>158</sup> See *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, Report and Order, 13 FCC Rcd 14775 (1998). See also *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket 97-80, Order on Reconsideration, 14 FCC Rcd 7596 (1999).

<sup>159</sup> Cohen and Brochu, *Q2 Preview*, July 1999, at 25.

<sup>160</sup> *Id.*

<sup>161</sup> Cox Communications, Inc., *Cox Communications Announces 2Q Financial Results for 1999* (press release), June 30, 1999. Cox offers service in California, Nebraska, Arizona, Connecticut, Virginia, Rhode Island, and Louisiana.

<sup>162</sup> *Making Sense of Digital TV: Industry Addresses Penetration Compression Ratios*, Cable World, Mar. 23, 1998, at 36.

<sup>163</sup> *Id.*

<sup>164</sup> Comcast Reply Comments at 2, 10, 17.

<sup>165</sup> Paul Kagan Assocs., *Digital Deployments*, The Cable TV Financial Databook, Aug. 1999, at 84.

<sup>166</sup> *Id.*

<sup>167</sup> *Id.*

<sup>168</sup> *Id.*

<sup>169</sup> *Broadband Today: A Staff Report to William E. Kennard, Chairman, Federal Communications Commission, Cable Services Bureau, Federal Communications Commission*, Oct. 1999, at 9 and App. A, *Breakdown of Online Universe 1999-2005* (“Broadband Report”). Many 56.6 Kbps telephone-line modems can be purchased for \$29.99-\$159.99. See [http://www.bestbuy.com/product\\_info/products/models.asp?C=39&P=N](http://www.bestbuy.com/product_info/products/models.asp?C=39&P=N). The typical cost of service from an Internet service providers is under \$6.95-\$26.95 per month depending on the features of the service. See <http://register.mindspring.com/cgi-bin/wsisd.dll/signup/signup1.w>; see also <http://www.erols.com/promo/signup.htm>.

Internet users were using analog telephone dial-up modems with an average speed of access of 33 Kbps.<sup>170</sup> It is projected that telephone dial-up will remain the principal means of accessing the Internet for at least the next several years.<sup>171</sup> However, as we have reported in the past, broadband technologies<sup>172</sup> allow users to access the Internet at much greater speeds.<sup>173</sup>

56. The most popular way to access the Internet over cable broadband infrastructure is through the use of a cable modem and personal computer, with information transmitted over the cable system's wires.<sup>174</sup> Cable broadband infrastructure accessed through cable modems allows users to access the Internet at speeds that range from fifty to several hundred times faster than telephone dial-up.<sup>175</sup> Cable systems and cable modems are reportedly able to offer speeds of up to 27 megabits-per-second ("Mbps").<sup>176</sup> However, because cable broadband network capacity is shared among users, and because of the hardware limitations, most connections are closer to one to ten Mbps.<sup>177</sup>

57. As reported last year, Cable Television Laboratories ("CableLabs") was founded in 1988 by a consortium of cable operators in North and South America.<sup>178</sup> Established to provide a clearinghouse for technological information, CableLabs created the cable modem standard, DOCSIS (Data Over Cable Service Interface Specification), in an effort to ensure practicality and accessibility of cable modem technologies.<sup>179</sup> Equipment conforming to the DOCSIS standard is eligible to be CableLabs Certified.<sup>180</sup> On April 22, 1999, CableLabs issued the DOCSIS 1.1 specification, defining new standards for cable modem functionality that allow cable operators to provide guaranteed bandwidth.<sup>181</sup> This development

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<sup>170</sup> Broadband Report at 23, App. A, Breakdown of Online Universe 1999-2005.

<sup>171</sup> *Id.*

<sup>172</sup> Broadband technologies include cable broadband, telephone company digital subscriber line ("DSL"), broadband wireless, and broadband satellite.

<sup>173</sup> *1998 Report*, 13 FCC Rcd at 24313 ¶ 52. Broadband Report at 16-19.

<sup>174</sup> The other means of accessing the Internet over cable broadband infrastructure is through the television using special equipment, as discussed in ¶ 64 *infra*.

<sup>175</sup> Broadband Report at 9, 18.

<sup>176</sup> *1998 Report*, 13 FCC Rcd at 24313 ¶ 52.

<sup>177</sup> Kinetic Strategies, Inc., *Cable Modem FAQ*, Cable Datacom News, <http://www.cabledacomnews.com/cmhc/cmhc2.html>; Broadband Report at 19.

<sup>178</sup> *1998 Report*, 13 FCC Rcd at 24318 ¶ 57; Cable Television Laboratories, Inc. ("CableLabs"), *What is CableLabs?*, [http://www.cablelabs.com/start\\_here/](http://www.cablelabs.com/start_here/). See also ¶¶ 212-214 *infra*.

<sup>179</sup> *Id.*

<sup>180</sup> CableLabs, *Bukovinsky Selected to Blend CableLab's Packet Cable and Cable Modem Initiatives* (press release), Sept. 9, 1999.

<sup>181</sup> CableLabs, *CableLabs Issues Specifications for DOCSIS 1.1 Modems* (press release), Apr. 22, 1999.

follows the passage of DOCSIS 1.0 on March 18, 1998, which encompassed data privacy and service protection and also allowed high-speed modems to be certified for retail sale.<sup>182</sup> There are now thirteen modem suppliers whose products have been certified for retail sale.<sup>183</sup>

58. Internet access via a cable modem enables access to a wide array of services including Web browsing, e-mail, streaming audio and video, local content, and CD-ROM servers.<sup>184</sup> Last year, we reported that as of August 31, 1998, more than 15 million homes were passed by Internet access service through cable modem technology, with approximately 300,000 subscribers.<sup>185</sup> As of July 1999, cable modem service was available to 32 million homes in the United States and Canada with more than 1 million subscribers by July 1999.<sup>186</sup> More than 90 percent of these subscribers receive "two-way" service, meaning that data transmission is carried over cable broadband infrastructure in both directions. The remaining 10 percent are served by systems that provide data transmission over cable in the downstream direction (i.e., to the consumer) and telephone line transmission in the upstream direction (i.e., back to the cable operator).<sup>187</sup>

59. Virtually all the major MSOs offer Internet access via cable modems in portions of their nationwide service areas.<sup>188</sup> Unlike high-speed access offered through a telephone company, the cable Internet service provider ("ISP") is selected on a national basis by the individual MSO and offered to customers on a regional basis. Road Runner and Excite@Home<sup>189</sup> are still the leading cable ISPs.<sup>190</sup> As of September 30, 1999, @Home reported 840,000 cable modem subscribers, a 300 percent increase since

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<sup>182</sup> CableLabs, *International Telecommunications Union Approves DOCSIS Modem Standard* (press release), Mar. 19, 1998; CableLabs, *CableLabs Issues Specifications for DOCSIS 1.1 Modems* (press release), Apr. 22, 1999.

<sup>183</sup> CableLabs, *CableLabs Certifies Best Data and Com 21 Modems, Re-certifies GI and RCA Modems, Re-qualifies Cisco CMTs* (press release), Dec. 9, 1999.

<sup>184</sup> Kinetic Strategies, Inc., *Cable Modem FAQ*, Cable Datatcom News, <http://www.cabledatcomnews.com/cm/cmic/cm2.html>.

<sup>185</sup> See *1998 Report*, 13 FCC Rcd at 24316 ¶ 55.

<sup>186</sup> Kinetic Strategies, Inc., *Cable Modem Market Stats & Projections*, Cable Datacom News, <http://www.cabledatcomnews.com/cm/cmic/cm16.html>.

<sup>187</sup> *Id.*

<sup>188</sup> See App. B, Tbl. B-10. This list is not exhaustive. The MSOs listed here are examples of cable operators currently providing Internet access to subscribers in some of their service areas.

<sup>189</sup> On May 28, 1999, @Home completed its merger with media services company Excite to form Excite@ Home.

<sup>190</sup> As reported last year, Excite@ Home and Road Runner are technologically different from other cable ISPs in that each provide its own local network and own routing and caching (storage) servers, allowing for increased access to popular content. See *1998 Report*, 13 FCC Rcd at 24316 ¶ 56.

September 30, 1998.<sup>191</sup> As of September 30, 1999, Road Runner had 420,000 subscribers.<sup>192</sup> Other cable ISPs include High Speed Access Corporation, The ISP Channel, and Online System Services Inc.<sup>193</sup>

60. As of June 1999, Cox offered @Home service to 3.2 million homes, and was serving 112,000 subscribers.<sup>194</sup> Comcast offers @Home service to 2.4 million households, or 43.6 % of Comcast subscribers.<sup>195</sup> As of August 1999, Comcast had 100,000 customers with three to five additional markets and 30,000 additional customers expected by year-end 1999.<sup>196</sup> Adelphia offers Internet access in nine states, passing more than 425,000 homes.<sup>197</sup> Bresnan offers Internet access in three states, passing over 120,000 homes with two-way service.<sup>198</sup> AT&T passes more than 1.6 million homes with @Home service in six states.<sup>199</sup> MediaOne passes more than 5.8 million homes in fifteen states.<sup>200</sup> Cablevision Systems offers @Home service to over 650,000 homes in Connecticut and Long Island, New York.<sup>201</sup> Charter offers Internet access through numerous ISPs, including High Speed Access Corporation, @Home, and Earthlink.<sup>202</sup> Charter passes over 300,000 homes with Internet Access.<sup>203</sup> RCN offers Internet access service in Massachusetts, Pennsylvania, New York City, New Jersey, Maryland, and Washington, DC.<sup>204</sup> Time Warner offers Road Runner Internet access service in nine states passing over 3.8 million homes.<sup>205</sup>

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<sup>191</sup> At Home Corporation, *Excite@ Home Reports ThirdQuarter 1999 Results* (press release), Oct. 19, 1999.

<sup>192</sup> Time Warner Inc., *Time Warner Businesses Report Record Third Quarter* (press release), Oct. 13, 1999.

<sup>193</sup> Kinetic Strategies, Inc., *Cable Internet Service Providers and Systems Integrators*, Cable Datatcom News, <http://www.cabledatcomnews.com/cmhc/cmhc5.html>.

<sup>194</sup> Cox Communications, Inc., *Cox Communications Announces Second Quarter Financial Results for 1999* (press release), June 30, 1999.

<sup>195</sup> Comcast Reply Comments at 17, 18; Mike Farrell, *Digital, QVC Drive Comcast Results*, Multichannel News, Mar. 1, 1999, at 49.

<sup>196</sup> *Id.*

<sup>197</sup> Paul Kagan Assocs., *Cable Modem Launches*, The Cable TV Financial Databook, Aug. 1999, at 78.

<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

<sup>200</sup> MediaOne Comments at 2, 15.

<sup>201</sup> Paul Kagan Assocs., *Cable Modem Launches*, The Cable TV Financial Databook, Aug. 1999, at 78.

<sup>202</sup> *See* App. B, Tbl. B-10

<sup>203</sup> Paul Kagan Assocs., *Cable Modem Launches*, The Cable TV Financial Databook, Aug. 1999, at 78.

<sup>204</sup> RCN Comments at 3.

<sup>205</sup> Paul Kagan Assocs., *Cable Modem Launches*, The Cable TV Financial Databook, Aug. 1999, at 78.

61. Although wireless and satellite broadband technologies exist, telephone company xDSL<sup>206</sup> technologies currently are the most significant competitors to Internet over cable broadband.<sup>207</sup> Reported to offer consumers data speeds between 1.5 Mbps and 52 Mbps, most users experience between only 1.5 and 8 Mbps for ADSL, the most widely used form of xDSL.<sup>208</sup> As we reported last year, xDSL technology has several advantages over cable broadband technology.<sup>209</sup> Among the advantages is the ability to offer customers simultaneous, high-speed Internet and voice or facsimile capabilities over a single telephone line.<sup>210</sup> Dedicated lines that run from the telephone subscriber's home to the central office can guarantee the user a constant, high-speed rate of data transmission and security.<sup>211</sup> This means that there is no decrease in data transfer speeds as more users get online, unlike cable's shared network.

62. Last year, we reported that in addition to the greater availability of Internet access over cable, the generally lower price for cable Internet access was an important difference between cable and high-speed telephone company products.<sup>212</sup> Currently, the number of xDSL subscribers is significantly less than the number of cable broadband subscribers.<sup>213</sup> By June 1999, there were 159,150 xDSL subscribers<sup>214</sup> compared to more than one million cable Internet access subscribers.<sup>215</sup> The rollout of DSL and other broadband technologies, however, is accelerating.<sup>216</sup> Analysts predict that over 30 million telephone lines will be able to support xDSL services by the end of 1999,<sup>217</sup> compared to the nearly 32 million homes passed by Internet access over cable.<sup>218</sup> Several telephone companies recently announced plans to

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<sup>206</sup> The acronym "xDSL" refers to a general class of digital subscriber line technologies. We report on ADSL because it is the most feasible for mass market deployment at this time. Another type of xDSL technology is VDSL which, unlike ADSL, cannot function over sustained distances. VDSL is the fastest of xDSL technologies, performing at rates of up to 52 Mbps, but cannot function over sustained distances like ADSL.

<sup>207</sup> See generally Broadband Report at 23-30.

<sup>208</sup> Jonathan Atkin and Daniel Ernst, *Bring on the Bandwidth: An Investor's Guide to Competitive Broadband Services*, Ferris, Baker Watts, Inc., July 1999, at 54 ("Atkin, July 1999").

<sup>209</sup> *1998 Report*, 13 FCC Rcd at 24314 ¶ 52.

<sup>210</sup> Broadband Report at 21; *1998 Report*, 13 FCC Rcd at 24314 ¶ 52.

<sup>211</sup> *Id.*

<sup>212</sup> *1998 Report*, 13 FCC Rcd at 24314 ¶ 53.

<sup>213</sup> Broadband Report at 9.

<sup>214</sup> *Id.* at 28.

<sup>215</sup> Kinetic Strategies, Inc., *Cable Modem Market Stats & Projections*, Cable Datatcom News, <http://www.cabledatcomnews.com/cm/cmic16.html>.

<sup>216</sup> Broadband Report at 25.

<sup>217</sup> *Id.* at 28.

<sup>218</sup> Kinetic Strategies, Inc., *Cable Modem Market Stats & Projections*, Cable Datatcom News, <http://www.cabledatcomnews.com/cm/cmic16.html>.

aggressively expand their xDSL service areas.<sup>219</sup> For example, SBC will increase xDSL availability to over 10 million homes by the end of 1999<sup>220</sup> and has committed to make broadband services available to 80% of its customers over the next three years.<sup>221</sup>

63. In the last year, the price difference between cable Internet access and xDSL service has narrowed. DSL providers now offer service for as low as \$19.95 a month. For example, U S West offers a service guaranteeing downstream data transfer rates of 256 Kbps for \$19.95.<sup>222</sup> Bell Atlantic offers a service guaranteeing data transfer rates of 640 Kbps downstream and 90 Kbps upstream for \$49.95 per month.<sup>223</sup> It also offers a service delivering a guaranteed 1.6 Mbps downstream and 90 Kbps upstream for \$99.95 per month.<sup>224</sup> By comparison, @Home cable Internet access is priced at \$39.95 per month and offers transfer speeds of up to 1.5 Mbps downstream and 128 Kbps upstream.<sup>225</sup> However, because bandwidth on cable networks is shared among users, most @Home users experience data transfer rates of approximately 128 Kbps downstream.

64. In addition, as we have reported in the past, a small portion of cable Internet access is delivered through a television receiver rather than a personal computer.<sup>226</sup> Such services are provided using a dedicated browsing device that communicates with the cable set-top box to offer basic applications such as e-mail, Web browsing and "hyperlinking" technology.<sup>227</sup> These services are typically priced at

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<sup>219</sup> See, e.g., <http://www.bellsouthcorp.co/proactive/documents/render/30523.vtml>; <http://www.ba.com/nr/1999/Oct/19991006004.html>; <http://www.cabledatcomnes.com/nov99/nov99-5.html>.

<sup>220</sup> Broadband Report at 28.

<sup>221</sup> SBC Communications, Inc., *SBC First to Surpass 10,000 DSL Subscribers* (press release), Nov. 4, 1999. However, it is unclear whether any of these xDSL offerings will contain a multichannel video component. Currently we are aware of no xDSL offering, other than a trial by U S West in Phoenix, that contains a multichannel video component.

<sup>222</sup> U S West offers a service for \$19.95 per month that delivers 256 Kbps downstream. See U S West, *MegaBit 256 Select: Comparison of Dial-up & MegaBit Services*, <http://www.uswest.com/home/offers/megabit/comparison.html>.

<sup>223</sup> Bell Atlantic Corporation, *Infospeed DSL and Bell Atlantic.net Pricing*, [http://www.bellatlantic.com/infospeed/more\\_info/pricing.html](http://www.bellatlantic.com/infospeed/more_info/pricing.html).

<sup>224</sup> *Id.*

<sup>225</sup> At Home Corporation, *Telephone Call to @Home Customer Service*, at 1-888-824-8101. See also GTE Corporation, *DSL Access*, <http://www.gte.net/pands/residential/dslpricing2.html>.

<sup>226</sup> *1998 Report*, 13 FCC Rcd at 24315 ¶ 54.

<sup>227</sup> Atkin, July 1999, at 80; *1998 Report*, 13 FCC Rcd at 24315-6 ¶ 54. Hyperlinking, in this context, is the technology that combines broadcast or cable television and telephone Internet connections to offer consumers access to supplemental information to television shows, one-button ordering, and the ability to play along with television shows when applicable.

approximately \$10 per month.<sup>228</sup> Providers of such service are WebTV and Worldgate.<sup>229</sup> Wink Communications offers a similar product marketed primarily as an interactive tool for the enhancement of multichannel video programming.<sup>230</sup>

65. *Telephone Services Offered by MSOs.* Opportunities for telephony over cable have contributed to the consummation of several large transactions over the past year, including AT&T's purchase of Tele-Communications, Inc., and its proposed purchase of MediaOne.<sup>231</sup> While operators have the technological ability to upgrade cable networks to offer reliable, circuit-switched cable telephony, the AT&T-TCI merger promised deployment of IP telephony.<sup>232</sup> An IP telephony voice call and a cable telephony voice call both begin with special equipment that connects a household's twisted pair infrastructure with its cable infrastructure.<sup>233</sup> Cable circuit-switched telephony, however, eventually turns the call over to traditional "circuit switched" processing, while IP telephony eventually turns the call over to the network of the Internet for IP processing.<sup>234</sup> IP telephony processes voice telephone calls much like data are processed on the Internet; that is, digitized pieces of data are divided into discrete packets and are transported over the Internet following the path of least resistance.<sup>235</sup>

66. Rather than offering circuit-switched cable telephony services and creating separate telephony and high-speed data architectures, many cable operators over the past year have responded to growing market demand for high-speed Internet access, with plans to combine both telephony and high-speed data access into one integrated multi-service communications platform.<sup>236</sup> However, before IP telephony can be deployed, a number of technical hurdles remain. Currently, CableLabs is managing a project called PacketCable, aimed at identifying, qualifying, and supporting products that support Internet

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<sup>228</sup> Atkin, July 1999, at 80.

<sup>229</sup> For an explanation of how the WebTV and Worldgate services operate, see *1998 Report*, 13 FCC Rcd at 24315-6 ¶ 54.

<sup>230</sup> Raymond Lee Katz and Adria Markus, *Wink Communications: Think Wink!*, Bear Stearns, Sept. 23, 1999.

<sup>231</sup> Richard Bilotti, Marc E. Nabi, and Gary Lieberman, *Cable Television/Satellite Communications: 1Q99 Review and 2Q99 Preview*, Morgan Stanley Dean Witter, Apr. 12, 1999, at 9.

<sup>232</sup> *Id.* Kinetic Strategies, Inc., *Cable IP Telephony Primer*, Cable Datacom News, at <http://www.cabledatacomnews.com/internetv/cm17.html>.

<sup>233</sup> *1998 Report*, 13 FCC Rcd at 24320 ¶ 58.

<sup>234</sup> *Id.*

<sup>235</sup> *Id.* "The path of least resistance" refers to the manner in which Internet data travels. In order to move important or large amounts of data from one location to another quickly, regardless of failures or delays in traditional communications networks, data packets over the Internet take any path that does not resist transfer. The path of least resistance is not always the shortest path, but it is the most reliable path for the mass transfer of data.

<sup>236</sup> Kinetic Strategies, Inc., *Cable IP Telephony Primer*, CableDatacom News, <http://www.cabledatacomnews.com/internetv/cm17.html>.

over cable-based multimedia services such as IP telephony.<sup>237</sup> On March 12, 1999, the first of a series of PacketCable specifications was released.<sup>238</sup> In September 1999, CableLabs participants conducted a series of PacketCable interoperability tests, drawing closer to PacketCable standards implementation.<sup>239</sup> Operators like AT&T are beginning to develop and test the necessary equipment to provide IP telephony, though no plans for deployment have been announced.<sup>240</sup>

67. While many cable operators are waiting for the development of IP telephony, others offer circuit-switched cable telephony. As of June 1999, Cox's residential telephone service, "Cox Digital Telephone," was available in six markets, passing 870,213 homes and serving 59,793 subscribers.<sup>241</sup> Comcast recently announced an agreement with AT&T to collaborate on local exchange telephone service through AT&T-branded telephony in Comcast markets.<sup>242</sup> Through its controlling interest in Jones Communications, Comcast serves 12,000 telephone subscribers in Prince George's County, Maryland, and Alexandria, Virginia.<sup>243</sup> Comcast also offers facilities-based telephony service on its systems in Ft. Lauderdale, Florida, and Baltimore, Maryland.<sup>244</sup> Comcast anticipates that IP telephony will replace current circuit-switched offerings.<sup>245</sup> MediaOne offers telephony in five states passing more than 3.6 million homes.<sup>246</sup> Through its wholly-owned subsidiary, Lightpath, Cablevision provides facilities-based telephone services to Long Island and Connecticut and plans to offer this service in all of its markets.<sup>247</sup> AT&T provides facilities-based telephony to approximately 15,000 subscribers in Fremont, California, Arlington Heights, Illinois, Dallas, Texas, and Hartford, Connecticut.<sup>248</sup>

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<sup>237</sup> CableLabs, *Bukovinsky Selected to Blend CableLab's Packet Cable and Cable Modem Initiatives* (press release), Sept. 9, 1999.

<sup>238</sup> CableLabs, *CableLabs Issues Specifications for DOCSIS 1.1 Modems* (press release), Apr. 22, 1999.

<sup>239</sup> CableLabs, *CableLabs Completes Another Round of Packet Cable Interoperability Testing* (press release), Oct. 5, 1999.

<sup>240</sup> AT&T/MediaOne Application at 25.

<sup>241</sup> Cox Communications, Inc., *Cox Communications Announces Second Quarter Financial Results for 1999* (press release), June 30, 1999.

<sup>242</sup> Comcast Reply Comments at 21.

<sup>243</sup> *Id.*

<sup>244</sup> *Id.*

<sup>245</sup> Comcast Reply Comments at 20, 21.

<sup>246</sup> Paul Kagan Assocs., *Telephony Launches*, The Cable TV Financial Databook, Aug. 1999, at 71.

<sup>247</sup> Cablevision Comments at 1.

<sup>248</sup> AT&T/MediaOne Application at 34.

68. **Multi-Service Offerings.** Analysts believe that bundling of multiple services,<sup>249</sup> offered either entirely over an operator's own network, or over a combination of its own network and a leased network, reduces churn,<sup>250</sup> and increases equity values.<sup>251</sup> The financial impact of bundling video, voice, and data, can lower an operator's marginal risk, and provide customers with the convenience of "one-stop" shopping.<sup>252</sup> However, it is believed that ubiquity for bundling will not occur for at least several years.<sup>253</sup>

#### B. Direct Broadcast Satellite Services

69. Direct broadcast satellite ("DBS") operators use satellites to transmit video programming to subscribers, who must buy or rent a small parabolic "dish" antenna and pay a subscription fee to receive the programming service. There are four companies licensed by the Commission to provide DBS service: DirecTV, EchoStar (marketed as the DISH Network), Dominion Video Satellite, Inc. and R/L DBS Company.<sup>254</sup> Of these, DirecTV, EchoStar and Dominion currently provide service. DirecTV and EchoStar offer up to 350 channels of video programming and serve more than ten million subscribers. Dominion offers religious oriented programming on a smaller number of channels than DirecTV or EchoStar. As discussed below, PrimeStar, which is now defunct, offered a medium powered satellite service that shared many of the attributes of DBS service, though PrimeStar service required a larger antenna and had lower channel capacity.<sup>255</sup> DirecTV acquired PrimeStar in May 1999, and its subscribers are being transitioned to DirecTV's high-powered DBS service.<sup>256</sup>

70. **Subscribership.** DBS remains cable's largest competitor, and DBS subscribership shows continued growth. As of June 1999, DBS providers had over ten million subscribers, an increase of approximately 39% since 1998.<sup>257</sup> Between June 1998 and June 1999, DirecTV added 1,524,000 subscribers and EchoStar added 1,234,000 subscribers.<sup>258</sup> DirecTV is the nation's leading satellite

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<sup>249</sup> The term "bundling," in this context, may be defined as "combining goods and/or services into a single package, often at a discounted price."

<sup>250</sup> "Churn" occurs when a subscriber to a cable service drops the subscription to that service.

<sup>251</sup> Katz, *Model*, Aug. 1999, at 15.

<sup>252</sup> *Id.*

<sup>253</sup> *Id.*

<sup>254</sup> R/L DBS holds a permit to construct a DBS system but has not launched satellites or begun service. Current subscriber numbers from Skyreport, [http://www.skyreport.com/skyreport/dth\\_us.htm](http://www.skyreport.com/skyreport/dth_us.htm).

<sup>255</sup> In previous years, we included a discussion of PrimeStar Partners, L.P. ("PrimeStar"), a medium-powered Ku-band Fixed Satellite Service ("FSS"), together with our discussion of high-powered Ku-band DBS providers. See 1998 Report 13 FCC Rcd at 24323 ¶ 61.

<sup>256</sup> This service is now called "PrimeStar by DirecTV." DirecTV has converted 20,000 PrimeStar customers to its high powered service and has an ongoing marketing plan to transition the remaining medium powered satellite service subscribers to DirecTV. See <http://www.primestar.com>.

<sup>257</sup> SBCA Comments at 7.

<sup>258</sup> <http://www.skyreport.com>.