

1. General Performance

20. Since our last *Report*, the cable industry has grown in terms of basic tier cable viewership, channel capacity,²² and premium service subscriptions.²³ Homes passed²⁴ continues to increase. Basic tier cable subscribership²⁵ and basic tier cable penetration, the ratio of the number of basic cable subscribers to the number of residential cable homes passed, declined in 2002 and is estimated to have declined further in the first half of 2003. Deployment of digital video programming, HDTV programming, video-on-demand, and non-video services, such as high-speed Internet access service and telephone service continued to increase during 2002 and the first half of 2003.

21. *Cable's Capacity to Serve Television Households.* The most widely used industry measurement of cable availability is the number of homes passed expressed as a percentage of the number of U.S. homes with at least one television ("TV households").²⁶ The calculation of cable availability has been a subject of controversy.²⁷ The number of homes passed depends on the data source used, and the percentage of homes passed varies based on the universe used for the comparison.²⁸ NRTC argues that approximately 23 million households in smaller and rural markets do not have access to cable services, and only have access to DBS for MVPD services.²⁹ In contrast, the cable industry argues that

²² Channel capacity is bandwidth dedicated to video use. Video channel capacity can be decreased on any given system simply by using bandwidth for other services, such as high-speed Internet access services or cable telephony.

²³ Premium services are cable networks provided by a cable operator on a per channel basis for an extra monthly fee. Pay-per-view ("PPV") services are cable networks provided on a per program basis. PPV service is a separate category from premium service.

²⁴ Homes passed is the total number of households capable of receiving cable television service.

²⁵ 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" ("BST") 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 other video programming services. One or more expanded tiers of service, known as cable programming service tier ("CPST") 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 video programming channels. 47 U.S.C. § 543(b)(7); 47 U.S.C. § 543 (k)(2).

²⁶ *2002 Report*, 17 FCC Rcd at 26909 ¶ 17; Nielsen Media Research, U.S. Television Household Estimates, Sept. 2003, at 1.

²⁷ *2002 Report*, 17 FCC Rcd at 26910 ¶ 18; See also *Application of EchoStar Communications Corporation, General Motors Corporation, and Hughes Electronics Corporation, Transferors and EchoStar Communications Corporation, Transferee*, 17 FCC Rcd 20559, 20611-12 ¶¶ 122-25 (2002) ("*EchoStar-Hughes HDO*") (designating for hearing the issue of the precise number of households that are not served by a cable operator, the number served by a low-capacity cable system, and the number served by a high-capacity cable system).

²⁸ Homes passed data evaluated in the context of our review of the EchoStar-DirecTV merger application indicated that the number of homes not passed by cable may vary from 4% to 21.28% depending on the estimation methods. *EchoStar-Hughes HDO*, 17 FCC Rcd at 20612 ¶ 124 and n.356.

²⁹ NRTC Comments at 4, NRTC Reply Comments at 2. See also *EchoStar-Hughes HDO*, 17 FCC Rcd at 20612 ¶ 124 and n.356.

cable operators serve all but the most sparsely populated areas.³⁰ Thus, there remains a disagreement regarding the number of households where there is competition between cable and DBS. NRTC asserts that the benefits of competition between DBS and cable are not yet available in many smaller and rural markets because households in these markets do not have access to cable service.³¹ The cable industry contends that the MVPD market is “fully competitive” since consumers nationwide have a choice among several fully competitive facilities-based MVPD alternatives.³² Comcast argues that consumers in almost every corner of America have a choice of three or more facilities-based MVPDs (*i.e.*, at least two DBS systems and a cable system).³³ Because cable systems differ in their capacities and capabilities, there has also been disagreement as to whether low-capacity and analog cable systems are good substitutes for DBS or whether only high-capacity cable systems should be considered as good substitutes for DBS.³⁴ For purposes of this *Report*, we continue to use, as we have in the past, data derived from Kagan World Media and Nielsen Media Research for historical consistency. We present these data to indicate trends, rather than an absolute measure of cable availability. As shown in Table 1 below, over the past ten years, the number of homes passed by cable systems grew from 91.6 million in 1994 to 95.6 million in 1998, and to an estimated 103.5 million in June 2003. Cable availability was estimated to be approximately 96.3% of TV households at year-end 2002.

22 Section 612(g) of the Communications Act provides that at such time as cable systems with 36 or more activated channels are available to 70% of households within the United States and are subscribed to by 70% of those households, the Commission may promulgate any additional rules necessary to promote diversity of information sources.³⁵ Previously, it was argued that the benchmark had not yet been met.³⁶ Based on the most current figures from Warren Publishing, as of December 1, 2003, there were 82,506,311 homes passed by cable systems with 36 or more channels. The Census Bureau estimates that, as of July 2002, there were 119.3 million households in the United States. The figure for December 2003 is likely to be greater than 119.3 million. Thus, cable systems with 36 or more channels are available to at most 69.2% of households in the United States. In addition, according to Warren Publishing, 56,859,607 households subscribe to cable systems with 36 or more channels. Thus, about 68.9% of households to which 36 or more channels are available actually subscribe.

³⁰ NCTA Comments at 25.

³¹ NRTC Reply Comments at 2

³² NCTA Reply Comments at 7. NCTA states that “alternatives to cable television are virtually universally available to consumers” *Id.* at 1

³³ Comcast Comments at 12; NCTA Comments at 24-27.

³⁴ *EchoStar-Hughes HDO*, 17 FCC Rcd at 20606-8 ¶¶ 108-112.

³⁵ 47 U.S.C. § 532(g)

³⁶ *See 2000 Report*, 16 FCC Rcd 6084 ¶ 193

TABLE 1: Cable Television Industry Growth: 1994 - June 2003 (in millions)³⁷

Year	TV Households ("TH") ³⁸		Homes Passed ("HP") ³⁹		Basic Subscribers ("Subs") ⁴⁰		HH Passed by Cable (HP/TH)	HHs Subscribing (Subs/TH)	U.S. Penetration (Subs/HP)
	Total	% Change Over Prior Yr	Total	% Change Over Prior Yr	Total	% Change Over Prior Yr			
1994	95.4	1.3%	91.6	1.1%	59.5	4.0%	96.0%	62.4%	65.0%
1998	99.4	1.4%	95.6	1.7%	65.1	1.4%	96.2%	65.5%	68.1%
1999	100.8	1.4%	97.6	2.1%	65.9	1.2%	96.8%	65.4%	67.5%
2000	102.2	1.4%	99.1	1.5%	66.6	1.1%	97.0%	65.2%	67.2%
2001	105.4	3.1%	100.6	1.5%	66.9	0.5%	95.4%	63.5%	66.5%
2002	106.7	1.2%	102.7	2.1%	66.1	-1.2%	96.3%	61.9%	64.4%
June 2003	106.7	0.0% ⁴¹	103.5	0.8% ⁴²	65.9	-0.3% ⁴³	97.0%	61.8%	63.7%

23 *Subscribership*. Over the past decade, the number of cable subscribers grew from 58.4 million in 1994 to 65.1 million in 1998, peaked with 66.9 million subscribers in 2001, and then declined to an estimated 65.9 million in June 2003, as shown in Table 1 above. The number of subscribers first declined in 2002 and is estimated to fall further in 2003. For example, Cablevision lost 15,552 basic

³⁷ Historical data in this table may differ from those previously reported because some data have been updated by the source.

³⁸ The 2002 and estimated June 2003 TV Household numbers are reported by Kagan World Media as total U.S. TV households. The numbers are derived from Nielsen Media Research and Kagan estimates. Kagan World Media, *Broadband Cable Financial Databook*, Aug. 2003, at 11 ("Cable Databook").

³⁹ The 1994 through 2002 homes passed numbers are reported by Kagan as residential cable homes passed. The June 2003 homes passed estimate is an average calculated from the 2002 and 2003 projection of occupied cable homes passed. *Cable Databook* at 9, 11.

⁴⁰ The 1994 through 2002 basic subscriber numbers are reported by Kagan as basic subscribers. The June 2003 basic subscriber estimate is an average calculated from the 2002 and 2003 projection of total basic cable subscribers. *Cable Databook* at 9, 11. According to NCTA, there were 70.49 million cable subscribers at the end of June 2003. NCTA Comments at 8. NCTA's estimate of cable subscribers is more than the number of basic subscribers reported in Table 1 above. This is likely due to differing measurement methodologies and data.

⁴¹ Percentage change from December 2002 to June 2003.

⁴² *Id.*

⁴³ *Id.*

subscribers between year-end 2002 and September 30, 2003,⁴⁴ Charter lost 149,500 basic subscribers over the same 12 month period,⁴⁵ and Time Warner lost 10,000 basic subscribers in the third quarter of 2003.⁴⁶ Recent declines in the total number of cable subscribers have been attributed to the number of cable subscribers switching to DBS and changes in reporting by MSOs.⁴⁷ As the number of homes passed increased, and the number of subscribers declined, cable penetration (*i.e.*, subscribers as a percentage of homes passed) continued to decline in 2002, and is estimated to decline further in the first half of 2003. As the number of homes passed and number of TV households increased, and the number of subscribers declined, the percentage of TV households subscribing to cable also continued to decline in 2002, and is estimated to decline further in the first half of 2003.

24. The number of homes subscribing to premium cable services increased from 27.7 million in 1994 to 32.9 million in 1998, peaked at 36 million in 2001, and declined to 35.3 million in 2002, as shown in Table 2 below. Thus, at the end of 2002, approximately 53% of cable's 66.1 million subscribers also subscribed to premium services. It is reasonable to assume that a majority of the cable subscribers that switched to DBS also subscribed to premium cable services. This may explain the recent decline in the number of homes subscribing to premium cable services. The number of homes subscribing to premium cable services was projected to increase, however, to 35.4 million in June 2003, as shown in Table 2. The expected increase in 2003 will come from fewer basic subscriber losses and an increase in the sale of premium services to the approximately 30 million basic cable subscribers that do not subscribe to premium services. The number of premium services to which homes are subscribing (also known as "pay units") has risen steadily over the past ten years from 46.5 million in 1994, to 58.6 million in 1998, to 81.1 million in 2002, to an estimated 82 million in June 2003. Although cable systems are selling premium cable services to fewer homes, the average number of subscriptions per remaining premium subscriber increased, from an average 1.8 subscriptions per subscriber at year-end 2001 to an average 2.3 subscriptions per subscriber at year-end 2002.⁴⁸

⁴⁴ *Cablevision Reported a 3rd-Quarter Loss of Nearly \$104.6 Million*, COMMUNICATIONS DAILY, Nov. 13, 2003, at 13.

⁴⁵ Charter Communications, Inc., *Charter Communications Reports Third Quarter 2003 Results* (press release), Nov. 3, 2003.

⁴⁶ Mike Farrell, *Mixed Results at Time Warner*, MULTICHANNEL NEWS, Oct. 17, 2003.

⁴⁷ NCTA Comments at 7. See also Caroline Wilbert, *Cable Takes Aim at Satellite Customers*, THE ATLANTA JOURNAL-CONSTITUTION, June 12, 2003, at E3. Adelphia lowered its subscriber counts for basic cable, digital cable, and high-speed Internet service reported in 2002 following a review of company accounting practices. Holly M. Sanchez, *Adelphia's Restatement Reduces Number of Subscribers*, BLOOMBERG NEWS, May 28, 2003, at <http://www.philly.com/mld/philly/business/5955785.htm>. Charter Communications also reduced the number of subscribers it counts in its subscriber base in response to an investigation of its method for counting subscribers. See *Charter Communications Under Investigation*, REUTERS, Aug. 16, 2002, at http://www.usatoday.com/money/media/2002-08-16-charter-probe_x.htm.

⁴⁸ Cable Databook at 8.

TABLE 2: Premium Cable Services: 1994 - June 2003 (in millions) ⁴⁹

Year	Premium Cable Service Subscribers (Pay HH) ⁵⁰		Premium Cable Service Subscriptions (Pay Units) ⁵¹	
	Total	% Change Over Prior Yr	Total	% Change Over Prior Yr
1994	27.7	4.9%	46.5	7.6%
1998	32.9	3.5%	58.6	6.0%
1999	34.3	4.3%	60.2	2.7%
2000	35.7	4.1%	65.9	9.5%
2001	36.0	0.8%	75.4	14.4%
2002	35.3	-1.9%	81.1	7.6%
June 2003	35.4	0.3% ⁵²	82.0	1.1% ⁵³

25. *Channel Capacity*. In 1994, 78% of all cable systems had the bandwidth to provide 30 or more analog video channels.⁵⁴ By 1998, 84.6% of all cable systems had the bandwidth to provide thirty or more analog video channels, and 20.7% of all cable systems had the bandwidth to provide 54 or more analog video channels.⁵⁵ Subsequent investments by cable operators in hybrid fiber/coaxial transmission lines and digital technologies increased both the bandwidth and versatility of cable systems. Although each analog video channel requires six MHz bandwidth, digital technologies facilitate the delivery of multiple digital video channels using six MHz bandwidth. The Commission's *2002 Price Survey Report* provides figures on the cable system bandwidth and the number of analog and digital video channels being delivered by cable systems responding to a Commission survey (see Table 3).⁵⁶ It shows that

⁴⁹ Historical data included in this table may differ from those previously reported because some data have been updated by the source.

⁵⁰ The 1994 through 2002 premium cable service subscribers ("Pay HH") numbers are reported by Kagan as pay subscribers. The June 2003 premium cable service subscribers estimate is an average calculated from 2002 and 2003 projections of average pay TV households. Cable Databook at 9, 11.

⁵¹ The 1994 through 2002 premium cable service subscriptions (Pay Units) numbers are reported by Kagan as the sum of premium units and mini-pay units (defined as a service or pay TV that programs less than 8 hours per day). The June 2003 premium cable service subscriptions estimate is an average calculated from 2002 and 2003 projections of total pay TV units, including mini-pay. Cable Databook at 9, 11.

⁵² Percentage change from December 2002 to June 2003.

⁵³ *Id.*

⁵⁴ *1995 Report*, 11 FCC Rcd at 2162, Table 3.

⁵⁵ *1999 Report*, 15 FCC Rcd at 990 ¶ 22.

⁵⁶ *2002 Price Survey Report*, fn 10 *supra*, 18 FCC Rcd 13284, 13296-98, Tables 9, 10, and 11. Section 623(k) of the Communications Act requires the Commission to publish annually a statistical report on cable prices, or more (continued..)

approximately 73% of the sampled cable systems (both competitive and non-competitive systems)⁵⁷ have facilities with bandwidth of 750 MHz or above.⁵⁸ The average bandwidth of systems in the Survey is approximately 680 MHz. Although the increased cable system bandwidth may be allocated among video and non-video services, some of the increased bandwidth has been used to increase the amount of video channels, especially the number of digital video channels.⁵⁹ The systems in the Survey devoted an average of approximately 507 MHz bandwidth to video service.⁶⁰ Today, cable operators are choosing to provide, on average, 70 analog video channels and approximately 120 digital video channels, with enough additional bandwidth to provide high-definition television, video-on-demand, and Internet access services. As shown in Table 3, from July 2001 to July 2002, the total number of video channels (analog plus digital) increased from 178 to approximately 199 for the competitive group, and from approximately 171 to 189 for the noncompetitive group.

(Continued from previous page)

specifically, average rates for the delivery of basic cable service, cable programming service, and equipment. See 47 U.S.C. § 543(k). Basic cable service includes local television broadcast signals. See 47 U.S.C. § 543(b)(7). Cable programming service includes any video programming other than video programming carried on the basic service tier, and video programming offered on a per channel or per program basis. See 47 U.S.C. § 543(k)(2). Equipment refers to a converter box, remote control, and other equipment necessary to access programming. See 47 U.S.C. § 543(b)(3).

⁵⁷ 2002 Price Survey Report, 18 FCC Rcd at 13298, Table 11. The Survey enables the Commission to compare prices charged by samples of two groups of cable operators: (1) operators that are deemed to face effective competition (referred to as the "competitive group") and (2) operators that do not face effective competition (the "non-competitive group"). Within the non-competitive group, information was collected from both regulated and unregulated operators. Operators in the competitive group are limited to those operators that have sought and obtained a Commission finding of effective competition. As a result, within the non-competitive group, there may be, and likely are, operators that face competition but have not filed a petition with the Commission seeking a finding of effective competition. Similarly, there may be operators within the competitive group that may have met the criteria for a finding of effective competition at the time the finding was made, but because of changed circumstances, may not meet the statutory criteria currently. See *id.* at 13285.

⁵⁸ According to NCTA, by year-end 2002, 79 million homes were passed by systems with 750 MHz or higher capacity and approximately 86 million households were passed by systems that provided two-way services, such as cable modem, interactive television, and IP telephony. NCTA Comments at 44-45. If we assume that there were 102 million occupied TV households passed by cable systems, NCTA's reported numbers for June 2003 suggest that approximately 77.4% of these homes had access to cable systems with 750 MHz or higher and 84.3% of these homes had access to activated two-way plant. NCTA's calculations for homes passed by 750 MHz cable systems differ from data reported in the 2002 Price Survey Report. This is likely due to differing measurement methodologies and data.

⁵⁹ Comcast reports that a typical Comcast upgraded 750 MHz plant is designed to provide 84 analog video channels, 216 digital video channels, eight HDTV channels, VOD service for 400 digital video customers at any one time, high speed data service for 400 subscribers, and telephone service for 300 customers. Comcast Comments at 15.

⁶⁰ Each analog channel requires six MHz bandwidth, so it takes approximately 420 MHz bandwidth to deliver the 70 analog channels. Multiple digital channels, however, can be delivered on six MHz bandwidth. We assume that an average of 8.6 digital channels are delivered for each six MHz bandwidth. The average number of digital channels in the survey is 124, so it takes approximately 87 MHz of bandwidth to deliver the 124 digital channels ($124/8.6 \times 6 \text{ MHz} = 86.5 \text{ MHz}$). It would take more bandwidth if some of the digital channels were delivering HDTV programming.

TABLE 3: Channel Capacity⁶¹

	Competitive Group		Noncompetitive Group	
	July 2001	July 2002	July 2001	July 2002
Average system capacity (MHz)	650.3	677.3	656.5	695.7
Percent of systems with capacity of:				
330 MHz and below	9.8%	8.1%	7.8%	5.8%
331 through 749 MHz	24.8%	19.2%	29.4%	20.8%
750 MHz	65.4%	72.7%	62.8%	73.4%
Total number of channels ⁶²	178	198.6	170.9	189.0
Total number of analog channels	72.0	70.3	69.9	70.1
Total number of digital channels	106.0	128.3	101.0	118.9

26. *Viewership.* The combined audience share⁶³ for total day viewing of all cable networks⁶⁴ was 29 in the 1993-1994 television season.⁶⁵ The share grew to 42 by the 1997-1998 television season.⁶⁶ Since then, cable networks have increased their combined audience, such that by the 2002-2003 television season, all cable networks combined received higher total day and prime time audience shares than broadcast television. Audience share statistics for total day viewing indicate that all cable networks combined increased their audience share from 53 in the 2001-2002 television season to a 55 share in the 2002-2003 television season. The total day viewing audience share of broadcast television⁶⁷ fell from a 47 share in the 2001-2002 television season to a 45 share in the 2002-2003 television season. Audience share statistics for prime time⁶⁸ show that all cable networks combined increased their share from 50 in the 2001-2002 television season to a 51 share in the 2002-2003 television season. The prime time viewing share of broadcast television fell from a 50 share in the 2001-2002 television season to a 49 share in the 2002-2003 television season. Although the most popular cable networks receive a lower audience share for total day viewing and prime time than any of the major broadcast television networks,

⁶¹ 2002 Price Survey Report, 18 FCC Rcd at 13296-98, Tables 9, 10, and 11.

⁶² In previous years, we have reported the total number of channels in terms of the bandwidth (specifically, the estimated number of six MHz channels) needed to carry the analog and digital channels. See fn. 60 *supra*.

⁶³ A share is the percent of all households using television during the time period that are viewing the specified station(s) or network(s). Nielsen reports audience shares that exceed 100% when totaled due to simultaneous multiple set viewing. We have normalized audience shares to equal 100%.

⁶⁴ Cable network shares include basic (BST and CPST), premium, and PPV cable networks. As discussed in paras. 141-142 *infra*, the number of nationally delivered cable networks available for delivery by cable operators and other MVPDs went from 99 in 1993, to 187 in 1998, to 339 in June 2003.

⁶⁵ Nielsen Media Research, *Broadcast Calendar (TV Season) Share of Audience Report, Primetime and Total Day, 1984-85 to 2002-03*, Sept. 2003.

⁶⁶ *Id*

⁶⁷ "Broadcast" shares include network affiliates, independent, and public television stations.

⁶⁸ Prime time viewing is Monday through Saturday, 8 pm-11 pm, and Sunday, 7 pm-11 pm.

there are a growing number of cable networks and their popularity is increasing, such that all cable networks combined have higher audience shares than all broadcast networks combined.⁶⁹

27. Cable Industry Revenue. Despite the decline in cable subscribers in recent years, cable industry revenue increased in every year of the past decade. Ten years ago, almost all revenue came from the provision of video services. In 2003, over 12% of revenue will come from Internet access and other non-video services.⁷⁰ The cable industry generated \$22.9 billion total revenue in 1993, \$32.7 billion in 1998, and is estimated to generate \$51.3 billion in 2003, with high-speed Internet access service a principal driver of revenue growth.⁷¹ As Table 4 shows, annual cable industry revenue grew 6.5% during 2002, reaching \$46.8 billion in total revenue. Not all revenue categories increased. Revenue from premium tiers, pay-per-view, and equipment/miscellaneous fell during 2002. These declines were offset by growth in revenue from local advertising, home shopping, advanced digital tiers, and high-speed Internet access and other non-video services.

28. Cable Industry Cash Flow. Cash flow (generally expressed as earnings before interest, taxes, depreciation, and amortization, or "EBITDA") is often used to assess the financial position of cable firms and other capital intensive companies.⁷² Cash flow from operations is the net result of cash inflows from operations (revenue) and cash outflows from operations (expenses). Cash flow from

⁶⁹ For the 2002-2003 TV season, Nielsen Media Research reports that the top-rated cable network for all-day audience was Nickelodeon/Nick-At-Nite with a 4 share compared to a 7 share for Fox affiliates, the lowest rated of the four major networks during the 2002-2003 TV season. ABC, CBS, and NBC affiliates received all-day shares greater than 7 for the 2002-2003 TV season. Similarly, the top-rated cable network in primetime was TNT with a 3 share compared to the Fox's primetime share of 8. On a January through December basis, ad-supported cable networks combined received a 50.3 share through December 14, 2003, while the seven broadcast networks combined received a 44.6 share. Allison Romano, *Basically, Cable Wins '03*, BROADCASTING & CABLE, Dec. 22, 2003, at 4. Although broadcast networks ratings tend to be large compared with any single cable channel, it is getting more common for a cable show to garner audiences similar to broadcast network shows. For example, five *Sunday Night Football* telecasts on ESPN attracted more than 10 million viewers each. In addition, shows like *Trading Spaces*, *The O'Reilly Factor* and *SpongeBob SquarePants* have attracted more than 7 million viewers. *Id.*

⁷⁰ Cable Databook at 7. High-speed data service now generates 18% of Cablevision's revenues. John M. Higgins, *Cablevision Rolling Out IP Phone Service*, BROADCASTING & CABLE, Nov. 17, 2003, at 12.

⁷¹ Jessica Reif Cohen and Keith Fawcett, *Cable Television*, Merrill Lynch, July 2, 2003, at 1.

⁷² For close to twenty years, the cable industry has used a cash flow valuation model. Cash flow valuation has been an effective tool for valuing companies that have negative net income because they are building out capital infrastructure and accruing significant long-term debt early in their life-cycle. The traditional measurement of cash flow, a measure of operating profit, has evolved into EBITDA which ignores the expenses of interest, taxes, depreciation and amortization, whereas the standard valuation model, net income, includes them. In the past year, free cash flow ("FCF") has largely replaced EBITDA as a critical valuation metric of choice among industry analysts. Although a standardized definition of FCF does not exist, FCF essentially takes into account the periodic interest that must be paid on debt. Some analysts more recently have proffered that the cable industry should be valued on the traditional net income model, and not cash flow or its various proxies (EBITDA or FCF) because the industry has now reached a stage of maturation that would justify use of more traditional valuation metrics. Tom Kerver, *Happy (?) Anniversary to the Followers of Cash-Flow Valuation*, MULTICHANNEL NEWSDAY, Sept. 30, 2002, at 3. Richard Bilotti, Scott Babka, and Kay Sheils, *The Six Degrees of Separating Free Cash Flow*, Morgan Stanley, Jan. 2, 2003, at 2-3 and 8-9. Douglas S. Shapiro, Michael L. Savner, and Jeffrey R. Toohig, *Free Cash Flow, Revisited*, Banc of America Securities, Apr. 28, 2003, at 20-1.

operations indicates a firm's ability to meet its net finance and investment obligations and thus does not include non-cash charges to net income such as depreciation and amortization. As Table 4 shows, cash flow from operations increased during 2002.⁷³ Table 4 also shows that revenue per subscriber is expected to grow from \$705 in 2002 to \$778 in 2003. In addition, cash flow as a percentage of revenue (cash flow margin) increased over the same period. That is, cash flow increased at a greater rate than revenue, indicating that revenues grew faster than operating expenses during 2002.

TABLE 4: Cable Industry Revenue and Cash Flow: 1994 – 2003⁷⁴

	1994	1998	2001	2002	01-02	2003	02-03
	Total	Total	Total	Total	% Change	Estimated Total	% Change
Basic Subscribers (mil.)	57.2	65.1	66.9	66.1	-1.2%	65.7	-0.6%
Revenue Segments (mil.)							
Basic Service and CPST Tiers	\$15,173	\$21,574	\$26,324	\$27,690	5.2%	\$28,926	4.5%
Premium (Pay) Tiers	\$4,680	\$4,521	\$5,201	\$5,226	0.5%	\$5,192	-0.7%
Pay-Per-View	\$484	\$514	\$993	\$793	-20.1%	\$887	11.9%
Local Advertising	\$1,077	\$1,675	\$2,430	\$2,978	22.6%	\$3,246	9.0%
Home Shopping	\$127	\$175	\$260	\$289	11.2%	\$308	6.6%
Total Digital Tier	\$0	\$98	\$1,980	\$2,764	39.6%	\$3,408	23.3%
High-speed Internet	\$0	\$103	\$1,878	\$4,494	139.3%	\$6,362	41.6%
Installation	\$328	\$400	\$433	\$426	-1.6%	\$437	2.6%
Miscellaneous ⁷⁵	\$698	\$1,217	\$1,893	\$2,202	16.3%	\$2,529	14.9%
Total Revenue (mil.)	\$22,567	\$30,277	\$41,392	\$46,862	13.2%	\$51,295	9.5%
Revenue Per Subscriber	\$394.53	\$465.08	\$618.71	\$708.96	14.6%	\$780.75	10.1%
Operating Cash Flow (mil.)	\$10,549	\$14,176	\$16,553	\$18,610	12.4%	\$21,050	13.1%
Cash Flow per Subscriber	\$184.42	\$217.76	\$247.43	\$281.54	13.8%	\$320.40	13.8%
Cash Flow/Total Revenue	46.7%	46.8%	40.0%	39.7%	-0.8%	41.0%	3.3%

29. Programming Costs. Programming costs have increased at double digit rates in recent years.⁷⁶ Yearly programming expenses, on a per-subscriber basis increased from \$122 in 1999 to \$180 in

⁷³ Kagan World Media reports that it was high-margin, high-speed-data service that drove operating cash flow growth in 2002. Cable Databook at 7.

⁷⁴ Pay-per-view, local advertising, and home shopping data for 1994, 1998 and 2001 come from the *1995, 1999, and 2002 Reports*. All other data come from the Cable Databook at 8-13 and 142. Historical data included in this table may differ from those previously reported because some data have been updated by the source.

⁷⁵ Miscellaneous revenue include: advanced analog, equipment charges, residential cable phone service, and new services. Cable Databook at 8.

⁷⁶ Richard Bilotti, Benjamin Swinburne, and Megan Lynch, *Cable & Satellite The Copernicus Theorem*, Morgan Stanley, July 2, 2003, at 48 ("Copernicus Theorem"); NCTA Comments at 36-37.

2002, a 48% increase.⁷⁷ Sports programming appears to be a major contributor to higher programming costs.⁷⁸ The average license fees for a sports network increased by 59% in the three years between 1999 and 2002, while the average license fees for a non-sports network increased 26% over the same three year period.⁷⁹ In addition, the average license fees for the sports networks were substantially higher than the average license fees for non-sports networks.⁸⁰ Some of the increase in sports programming costs is attributable to competition among sports networks and the rising players' salaries that lead to increased television rights fees.⁸¹ Other reasons for increasing programming costs include: more intense competition among networks which has bid up the cost of key inputs (such as writers and producers), an increase in the amount of original content shown on cable networks, the addition of new cable networks, and improved quality of programming generally.⁸²

30. Cable operator programming expenditures⁸³ were \$4.4 billion in 1994 and \$7.5 billion in 1998.⁸⁴ Programming costs for 2003 will exceed \$9 billion. Between 1998 and 2002, analysts estimate programming expenditures for cable operators grew an average of 11-13%.⁸⁵ Part of this increase was from fee increases paid to cable networks and part was from the addition of channels.⁸⁶ Analysts expect programming expenditures to continue to increase at a slower rate than in recent years.⁸⁷

31. Expenditures by basic cable networks for original programming and program acquisition increased from approximately \$7.9 billion in 2001 to approximately \$9.2 billion in 2002.⁸⁸ Expenses for

⁷⁷ 2003 GAO Report, fn. 7 *supra*, at 21

⁷⁸ *Id.* at 22.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ NCTA Comments at 36-37. *See also* para. 171 *infra*

⁸² NCTA Comments at 23.

⁸³ Programming expenditures include analog, premium, pay-per-view, and digital programming costs.

⁸⁴ NCTA, *Industry Statistics, Cable Developments 2003*, at 13

⁸⁵ *Copernicus Theorem* at 48.

⁸⁶ NCTA Comments at 34-37.

⁸⁷ The projected decline in the rate of growth of programming expenditures is based on an assumed shifting in the balance of power from programmers to cable operators. *See* Douglas Shapiro and Michael Savner, *Cable Industry Quarterly: 3Q03 Preview and Industry Outlook*, Banc of America Securities, Oct. 22, 2003, at 32-3; and *Copernicus Theorem* at 47. Morgan Stanley expects programming costs to increase 6-8% annually. *Copernicus Theorem* at 47. Smith Barney reports that Cox's total programming costs will increase by 11.5% in 2004. Niraj Gupta, *Cable MultichannelBeat Fox Deal Looks Good for Cox*, Citigroup-Smith Barney, Dec. 8, 2003, at 1. USB reports that Comcast's recently signed multi-year agreement with Viacom cable networks provides for annual rate increases of 6-8%, well below USB's 2004 estimated programming expense increase of 9.2% for Comcast. Aryeh B Bourkoff, *Cable TV/Satellite News & Views*, UBS, Dec. 19, 2003, at 1-2.

⁸⁸ NCTA Comments at 35

copyright fees for broadcast signal carriage pursuant to Section 111 of the Copyright Act⁸⁹ fell 0.9% from \$121.9 million in 2001 to \$120.8 million in 2002.⁹⁰

32. *Cable System Transactions.* The aggregate value of cable systems sold in any year depends on the number of transactions, the size of the entities involved, and the price paid. As such, the aggregate value of cable systems sold will vary from year to year. The aggregate value of cable systems sold was about \$14 billion in 1994 and \$64.6 billion in 1998, as shown in Table 5 below. One analyst explained that had it not been for the AT&T-Comcast merger, “2001 would have been the slowest year for cable deals” since 1982.⁹¹ With the AT&T-Comcast merger, however, the aggregate value of cable systems sold peaked at \$87.5 billion.⁹² As shown in Table 5, the number of system acquisitions and exchanges between MSOs slowed in 2002 and the aggregate value of cable systems sold was only \$1.4 billion. Through June 2003, there have been only 21 cable systems sales valued at approximately \$422 million. According to one analyst, that is the lowest deal volume since 1982.⁹³ Several mergers among large operators which involve the transfer and exchange of numerous systems, however, are not reflected in Table 5.⁹⁴ One reason given for the recent slowdown in cable system transactions is that debt reduction has become a high priority for cable companies.⁹⁵ Another reason given for the slowdown is that cable stocks have fallen from their peaks and cable buyers do not want to use their shares to finance acquisitions, while cable sellers still hope to receive prices similar to those being paid in the late 1990s.⁹⁶

33. The “average value per subscriber” was \$1,869 in 1994, and remained fairly constant until 1998 when it grew to \$2,877, as shown in Table 5. The value per subscriber continued to increase until 2000 when it reached a peak of \$5,755.⁹⁷ By 2002, it had fallen to \$2,357 and was approximately \$2,500 for systems sold in the first half of 2003, as shown in Table 5. The rise and subsequent decline in the

⁸⁹ Copyright Act, 17 U.S.C. § 111 *et seq*

⁹⁰ Copyright Office, Library of Congress, *Licensing Division Report of Receipts*, Oct. 9, 2003. Copyright fees are due on a specific date, but are collected on a rolling basis. We report the most current figures reported by the Copyright Office.

⁹¹ Kagan World Media, *Broadband Cable Financial Databook*, July 2002, at 177.

⁹² *Id.*

⁹³ *Id.* at 5.

⁹⁴ Merger transactions are not reflected in Table 5. Mergers over the last couple of years, however, have involved the transfer of many cable systems. See e.g., *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from MediaOne Group, Inc., Transferor, to AT&T Corp., Transferee*, 15 FCC Rcd 9816 (2000), *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc., Transferors, to AOL Time Warner Inc., Transferee*, 16 FCC Rcd 6547 (2001) (“AOL Time Warner Order”), *Applications for Consent to the Transfer of Control of Licenses, Comcast Corporation and AT&T Corp., Transferors, to AT&T Comcast Corporation, Transferee*, 17 FCC Rcd 23246 (2002) (“AT&T-Comcast Merger Order”).

⁹⁵ Cable Databook at 5.

⁹⁶ John M. Higgins, *A Pause in Consolidation*, BROADCASTING & CABLE, Nov. 10, 2003, at 32.

⁹⁷ Cable Databook at 179.

value per subscriber parallels the rise and decline in the cash flow multiple paid for systems sold. In 1994, systems were selling for 10.3 times cash flow, as shown in Table 5. It hit a low in 1997 at 9.2, then began to rise and peaked in 2000 at 19.5.⁹⁸ By 2002, systems were selling for 11.6 times cash flow, and 11.0 times cash flow in the first half of 2003, as shown in Table 5. In the late 1990s, the increase in prices paid for subscribers parallels the consolidation of the cable industry and the clustering of cable systems.⁹⁹

TABLE 5: System Transactions: 1994 - June 2003¹⁰⁰

	1994	1998	2001	2002	01-02 % Change	Jan-Jun 2003
Number of Systems Sold	64	114	36	23	-36.1%	21
Total Number of Subscribers Sold	7,504,177	22,458,157	17,958,375	607,446	-96.6%	168,748
Average Number of Subscribers per System Sold	117,253	197,001	498,844	26,411	-94.7%	8,036
Total Number of Homes Passed Sold	12,492,997	36,387,196	31,657,221	1,158,765	-96.3%	298,723
Average Number of Homes Passed per System Sold	195,203	319,186	879,367	50,381	-94.3%	14,225
Total Dollar Value (mil.)	\$14,025	\$64,608	\$87,499	\$1,432	-98.4%	\$421.8
Average Dollar Value (mil.) of System Sold	\$219	\$567	\$2,431	\$62.3	-97.4%	\$20.1
National Average Dollar Value Per Subscriber ¹⁰¹	\$1,869	\$2,877	\$4,872	\$2,357	-51.6%	\$2,500
Dollar Value Per Home Passed	\$1,123	\$1,776	\$2,764	\$1,236	-55.3%	\$1,412
Cash Flow Multiple	10.3	13.1	19.3	11.6	-39.9%	11.0

34. **Stock Prices.** Cable stock prices, as measured by the Kagan Cable MSO Average, declined 54.7%, in 2002, whereas the S&P 500 declined 23.4% and the NASDAQ declined 31.5%.¹⁰² Analysts reported that having invested billions to rebuild and upgrade cable plant, investors appeared to be

⁹⁸ *Id.*

⁹⁹ See paras. 132-134 *infra* for a discussion of consolidation and clustering in the cable industry.

¹⁰⁰ Data for 2002 come from Kagan World Media, Cable TV Investor, Jan. 31, 2003, at 9. Data for January-June 2003 come from Kagan World Media, Cable TV Investor: Deals & Finance, July 30, 2003, at 20 ("Deals & Finance July 2003"). Historical data included in this table may differ from those previously reported because some data have been updated by the source.

¹⁰¹ The value per cable subscribers is not uniform nationwide, but instead varies by system. Subscribers in certain systems are more valuable based on considerations such as the capacity of the system, the average number of services purchased by subscribers in a given system, or the cash flow generated by the operations of a given system. System sale prices also vary from year to year based on supply and demand factors as well as industry access to capital and the relative cost of such capital.

¹⁰² Percentage changes are derived from 2001 and 2002 year-end closing prices. Cable Databook at 89.

concerned about the ability of cable operators to prosper against DBS.¹⁰³ Analysts also reported that cable stocks were depressed in 2002 because of accounting irregularities and legal challenges.¹⁰⁴ In the first half of 2003, the Kagan Cable MSO Average increased 25.5%, the S&P increased 11.0% and the NASDAQ increased 21.7%.¹⁰⁵ Analysts reported that cable stock prices climbed on news of moderating basic subscriber losses, encouraging trials of new technologies, strong revenue growth, and strength in the local cable advertisement market.¹⁰⁶

2. Capital Acquisition and Disposition

35. *Industry Financing.* The cable industry typically has relied on combinations of private and public financing, with the 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, and the attractiveness of debt and equity offerings. Table 6 shows the amount raised per year by source.

¹⁰³ Kagan World Media, Cable TV Investor, December 20, 2002, at 1

¹⁰⁴ Kagan World Media, Cable TV Investor, May 30, 2003, at 1; Cable TV Investor, June 30, 2003, at 1. Kagan World Media states that cable operators spent 2002 "mired in a sea of investor distrust." Cable Databook at 4.

¹⁰⁵ Percentage changes are derived from 2002 year-end and June 27, 2003, closing prices. Deals & Finance July 2003 at 23. Kagan World Media states that "The provision of new services driving cash flow growth, declines in upgrade spending, and a refreshing lack of major corporate financial/managerial scandals have helped cable shares recover from their dishonor-driven depths of 2002." Cable Databook at 5.

¹⁰⁶ Kagan World Media, Cable TV Investor: Deals & Finance, June 30, 2003, at 1.

TABLE 6: Acquisition of Capital: 1994 - June 2003 (\$ in millions)¹⁰⁷

Year	Private Debt		Net New Public Debt		Private Equity (Pvt. Placement/VC)		Public Equity (Common/Preferred)		Total Capital Raised in Year
	Amount Raised	% of Total Raised in Year	Amount Raised	% of Total Raised in Year	Amount Raised	% of Total Raised in Year	Amount Raised	% of Total Raised In Year	
1994	\$7,454	91.2%	\$155	1.9%	\$100	1.2%	\$461	5.6%	\$8,170
1995	\$9,688	51.5%	\$4,495	23.9%	\$1,191	6.3%	\$3,419	18.2%	\$18,793
1996	\$5,837	58.0%	\$2,355	23.4%	\$49	0.5%	\$1,818	18.1%	\$10,059
1997	\$2,933	27.4%	\$6,252	58.4%	\$1,292	12.1%	\$230	2.1%	\$10,707
1998	\$5,421	39.1%	\$6,299	45.5%	\$250	1.8%	\$1,927	13.9%	\$13,897
1999	\$34,358	51.9%	\$18,610	28.1%	\$5,385	8.1%	\$7,799	11.8%	\$66,152
2000	\$7,255	60.3%	\$4,288	35.7%	\$101	0.8%	\$380	3.2%	\$12,024
2001	\$6,668	31.4%	\$10,678	50.2%	\$623	2.9%	\$3,282	15.4%	\$21,250
2002	\$2,545	25.2%	\$3,942	39.0%	\$15	0.1%	\$3,608	35.7%	\$10,110
June 2003	\$1,791	41.8%	\$2,376	55.5%	\$116	2.7%	\$0.0	0%	\$4,283
Total Raised: 1994-June 03	\$83,950	47.9%	\$59,450	33.9%	\$9,122	5.2%	\$22,924	13.1%	\$175,444
Avg Raised Per Year	\$8,837		\$6,258		\$960		\$2,413		\$18,468

36. *Capital Expenditures/Capital Investment.* In the mid-1990s cable companies began accelerating investments to rebuild and upgrade their cable systems.¹⁰⁸ Since 1996, cable operators have spent approximately \$74 billion on capital expenditures.¹⁰⁹ Approximately \$40 billion was invested to: (1) extend cable systems; (2) rebuild cable systems by replacing coaxial cable with fiber optics;¹¹⁰ and (3) upgrade cable systems by adding digital capabilities.¹¹¹ Approximately \$22 billion was invested in set-top boxes, modems, converters, and inventory.¹¹² These investments make possible premium movie services,

¹⁰⁷ Data for 2002 come from Cable Databook at 147. Data for January-June 2003 come from Deals & Finance July 2003 at 21. Historical data included in this table may differ from those previously reported because some data have been updated by the source.

¹⁰⁸ Comcast argues that these capital investments have been in response to the emergence of DBS. Comcast Comments at 9. See also Cox Comments at 6, Time Warner Comments at 2; NCTA Comments at 9.

¹⁰⁹ Kagan World Media, Cable TV Investor: Deals & Finance, Aug. 28, 2003, at 8 ("Deals & Finance Aug. 2003"). Major capital expenditure categories include new builds, rebuilds, upgrades, and consumer premise equipment.

¹¹⁰ NCTA Comments at 42.

¹¹¹ Deals & Finance Aug. 2003 at 8. "Rebuilds" are significant improvements made to existing systems that do not retain much of the old system plant and equipment. "Upgrades" are improvements to existing cable systems that do not require the replacement of the entire existing plant and equipment. "Digital capabilities" include Internet services as well as digital television capabilities.

¹¹² *Id.*

pay-per-view programs, high-definition programming, high-speed Internet access services, CD-quality music, and cable telephony.¹¹³ In 2002, NCTA estimated that the rebuilding of cable plant was nearly 80% complete.¹¹⁴ This year, NCTA estimates that the rebuilding is nearly 83% complete.¹¹⁵ As the rebuilding of analog cable systems into advanced broadband platforms nears completion, capital expenditures for most cable operators continue to be reduced. In addition, falling prices for converters and modems are contributing to lower capital expenditures.¹¹⁶

37. Capital expenditures peaked in 2001, when cable operators spent an estimated \$16 billion.¹¹⁷ Capital expenditures declined in 2002 to approximately \$14.5 billion, and are estimated to fall again in 2003 to \$11.1 billion.¹¹⁸ For 2003, analysts estimate that approximately 25% of capital outlays will be spent for maintenance; 27% for plant build out, rebuild, and upgrade; 34% for set-tops, modems, converters, inventory, and scalable infrastructure, 12% for support, and 2% for commercial (*i.e.*, non-residential) purposes.¹¹⁹

38 Comcast reported capital expenditures of \$2.2 billion in 2001 and \$2 billion in 2002.¹²⁰ For the first six months of 2003, Comcast reported \$724 million in capital expenditures.¹²¹ Comcast reports that, prior to the acquisition of AT&T Broadband, over 95% of its systems were already upgraded.¹²² When Comcast acquired the AT&T Broadband systems in 2002, only 66% of those systems had a capacity of 750 MHz or greater. Currently, 85% of the acquired systems have a capacity of 750 MHz or

¹¹³ NCTA Comments at 42

¹¹⁴ 2002 Report, 17 FCC Rcd at 26917-18 ¶ 33 and n. 69.

¹¹⁵ Staff conversation with Gregory L Klein, Senior Director, Economic & Policy Analysis, NCTA, Nov. 12, 2003. Kagan World Media states that “With capital upgrade programs in their waning years, and some operators already free cash flow-positive, attention is shifting to what cable’s \$75 billion in capital expenditures since 1996 can deliver, vs. what it cost.” Cable Databook at 4

¹¹⁶ Deals & Finance Aug. 2003 at 5

¹¹⁷ *Id.* at 7-8.

¹¹⁸ *Id.* Morgan Stanley reports that the cable industry’s total residential capital expenditures were \$18.3 billion in 2001, \$15.3 billion in 2002, and estimates \$12.2 billion in 2003. Although Morgan Stanley’s numbers are higher than those reported by Kagan, the general decline in capital expenditures, and percentage allocation of total capital expenditures to rebuilding and upgrading, is similar. *Copernicus Theorem* at 11.

¹¹⁹ Deals & Finance Aug. 2003 at 8

¹²⁰ Comcast Corp., SEC Form 10-K for the Year-Ended December 31, 2002, at 40.

¹²¹ Comcast Corp., SEC Form 10-Q for the Period Ending June 30, 2003, at 4. In its comments, Comcast says that for 2003 the company expects to spend approximately \$4 billion on capital improvements, with \$1.3 billion dedicated to upgrading cable systems. In the second quarter of 2003, Comcast says that the company spent \$1.1 billion in capital improvements, so that more than 89% of Comcast’s networks have been upgraded to provide two-way digital and high-speed Internet services. Comcast Comments at 14. Comcast uses the term “capital improvements” which may differ from “capital expenditures” reported in the company’s quarterly and annual reports to the SEC

¹²² Comcast Comments at 14, n.27

greater and have been upgraded to provide two-way digital cable and high-speed Internet access service.¹²³ Cox reports that over 90% of its cable infrastructure currently has capacity of 750 MHz or more, and approximately 96% of the homes passed by Cox are able to receive two-way digital video services and high-speed Internet access.¹²⁴ Cox reported capital expenditures of \$2.2 billion in 2001 and \$1.9 billion in 2002.¹²⁵ As of June 2003, Cox had spent approximately \$662.9 million on capital expenditures.¹²⁶ Time Warner reported cable-related capital expenditures of \$1.8 billion in 2001 and 2002 and \$773 million in the first half of 2003.¹²⁷ Time Warner has upgraded virtually all of its cable architecture with hybrid fiber-coax cable plant capable of supporting two-way, digital communications and anticipates a decrease in capital expenditures during the full year 2003 as compared to 2002.¹²⁸ Cablevision reported cable-related capital expenditures of \$934 million in 2001, and \$945 million in 2002.¹²⁹ For the first six months of 2003, Cablevision reported cable-related capital expenditures of \$374 million.¹³⁰ Cablevision reports that all of its upgraded cable systems utilize fiber optic cable and expects that by the end of 2003, 100% of its cable systems will be 750 MHz capable two-way interactive.¹³¹ Charter reported cable capital expenditures of \$3 billion in 2001, and \$2.2 billion during 2002.¹³² As of June 30, 2003, Charter spent \$264 million in capital expenditures.¹³³ Charter expects to spend between \$800 million and \$925 million in 2003 and reports that the significant decline in capital expenditures in 2003 compared to 2002 is the result of its network being upgraded and rebuilt in prior years.¹³⁴

¹²³ *Id.* at 19.

¹²⁴ Cox Comments at 4.

¹²⁵ Cox Communications, Inc., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 55.

¹²⁶ Cox Communications, Inc., *SEC Form 10-Q for the Quarterly Period Ended June 30, 2003*, at 5.

¹²⁷ AOL Time Warner, Inc., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at F-35. AOL Time Warner, Inc., *SEC Form 10-Q Quarterly Report for the Period Ended June 30, 2003*, at 27.

¹²⁸ Time Warner Comments at 3, AOL Time Warner, Inc., *SEC Form 10-Q Quarterly Report for the Period Ended June 30, 2003*, at 27.

¹²⁹ Cablevision Systems Corp., *Cablevision Systems Corporation Reports Fourth Quarter 2002 Financial Results* (press release), Feb. 11, 2003.

¹³⁰ Cablevision Systems Corp., *Cablevision Systems Corporation Reports Second Quarter 2003 Results* (news release), August 5, 2003.

¹³¹ Cablevision Systems Corp., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 6.

¹³² Charter Communications, Inc., *SEC Form 10-K405 for the Year-Ended December 31, 2001*, at 46. Charter Communications, Inc., *Charter Announces 2002 Operating Results and Restated Financial Results for 2001 and 2000, Company Will Extend Filing of Form 10-K* (news release), April 1, 2003, at 2.

¹³³ Charter Communications, Inc., *Charter Communications Reports Second Quarter 2003 Financial Results* (news release), July 31, 2003, at 40.

¹³⁴ Charter Communications, Inc., *Charter Communications Reports Second Quarter 2003 Financial Results* (news release), July 31, 2003, at 40.

3. Provision of Advanced Services¹³⁵

39 A decade ago, cable operators provided only analog video services. Today, most cable operators offer subscribers a number of advanced services, including digital video, high-speed Internet access, video-on-demand ("VOD"), high-definition television ("HDTV"), and Internet protocol ("IP") telephony over cable. Mid-sized and smaller cable operators also are deploying advanced services.¹³⁶ A December 2002 survey of mid-sized and smaller cable operators shows that more than half were providing digital cable and high-speed cable Internet service, and most of the other half planned to launch the services in the near term.¹³⁷ The advanced services provided, or planned, by mid-sized and smaller cable operators appear to be similar to those offered by large cable operators.¹³⁸

40. **Digital Video Services** In 1997, several cable operators were beginning to provide digital video, data, and voice services over their cable systems.¹³⁹ Today, all major cable operators offer digitally-compressed video channels to cable subscribers on a "digital tier."¹⁴⁰ Digital compression

¹³⁵ Subscription data for advanced services shown in this *Report* are primarily for residential service, but may also include some small business service. For example, Comcast offers a business Internet service for teleworkers called Comcast Teleworker, and a business Internet service for small businesses with up to five computers called Comcast Pro. Similarly, Time Warner also offers a business Internet service called Road Runner Business Class to small and medium-sized businesses and telecommuters. Subscribers to these services are included in the reported numbers.

¹³⁶ American Cable Association, *ACA Members Say High-End Services Key to Future Growth, but Programming Problems Must be Resolved Promptly* (press release), June 30, 2003. See also NCTA, *Operators of Mid-Size, Small and Rural Cable Systems Detail Broadband Deployment for FCC* (press release), Feb. 4, 2003.

¹³⁷ *Id.* See also The Carmel Group, *The Telecom Future of Independent Cable*, Survey of American Cable Association Concerns and Issues, June 30, 2003, at 16. Some respondents to the survey plan to provide advanced services in 3-5 years. For example, 14% plan to provide digital cable in 3-5 years, 5% plan to provide high-speed Internet access in 3-5 years, 33% plan to provide HDTV in 3-5 years, 32% plan to provide VOD in 3-5 years, and 22% plan to provide DVR in 3-5 years. Some respondents to the survey have no plans to provide advanced services. For example, 7% have no plans to deploy digital cable, 22% have no plans to deploy high-speed Internet access, 11% have no plans to deploy HDTV, 19% say they will never deploy VOD, and 28% say they will never deploy DVR. *Id.*

¹³⁸ For example, Buckeye Cable System serves approximately 151,000 subscribers and advertises a "state-of-the-art fiber optic network," with digital cable including HDTV, and high-speed Internet access with 2 Mbps download speed. Buckeye Cable System, at <http://www.buckeyecablesystem.com>. Sunflower Broadband, which serves Lawrence, Eudora, and Douglas County, Kansas, provides digital cable with HDTV, high-speed internet access, and digital telephony. Cebridge Connections, which serves approximately 350,000 subscribers in primarily suburban, small-town, and rural communities in nine states, states that it "is committed to bringing these customers a level of service that matches what their urban-based counterparts enjoy." Cebridge Connections, *Classic Communications Becomes Cebridge Connections Name Change is Part of Large Makeover for Small-System Operator* (news release) Oct. 6, 2003. Cebridge expects to begin deploying cable telephony in early 2004. Cebridge Connections, *Net2Phone to Provide Cable Telephony Services for Cequel III's Cebridge Connections* (news release), Nov. 18, 2003.

¹³⁹ *1997 Report*, 13 FCC Rcd at 1063-64 ¶¶ 45-46. The MSOs beginning to offer digital video service included Cablevision, Comcast, Cox, and Time Warner. *Id.*

¹⁴⁰ The digital tier offers programming that is digitally compressed for efficient delivery. The programming is then demodulated from digital to analog format for display on subscribers' analog television receivers. This so-called (continued..)

technologies allow anywhere from four to 12 video channels to be compressed into the capacity previously used to provide just one standard six MHz analog channel. The programming available on digital tiers includes a variety of genres, such as sports, movies, children's, and foreign-language programming

41 In 1998, 740,000 cable homes subscribed to digital cable service.¹⁴¹ At the end of 2001, approximately 15.2 million cable homes subscribed to digital cable service.¹⁴² At the end of 2002, the number of subscribers grew to 19.2 million.¹⁴³ The cable industry reports that at the end of June 2003, digital cable service was available to approximately 90% of all cable subscribers and the number of subscribers to digital video service grew to 20.6 million.¹⁴⁴

42. As of June 30, 2003, Comcast offered digital cable service to all of its 21.4 million subscribers and had seven million digital cable subscribers.¹⁴⁵ Comcast offers two digital tiers (not including movie tiers or pay-per-view).¹⁴⁶ Comcast also offers two Spanish-language tiers in markets with large Hispanic populations.¹⁴⁷ As of June 30, 2003, Cox digital cable was available to 98% of its 6.3 million basic cable subscribers and had 1.9 million digital cable subscribers.¹⁴⁸ Cox offers several digital tiers from which a subscriber may pick and choose, including, for example, a movie tier, a variety tier, a sports and information tier, a TeleLatina tier, and a Discovery tier.¹⁴⁹ Cox also offers a series of multiplexed premium digital tiers, including HBO, Showtime, and international premium services, such as TV Asia and Washington Korean TV.¹⁵⁰ As of June 30, 2003, Time Warner had 11.1 million basic cable subscribers and over 4.1 million digital cable subscribers.¹⁵¹ Time Warner's digital cable service offers up to 200 video and audio channels.¹⁵² By year end 2002, Cablevision had approximately 3.0

(Continued from previous page)

"digital tier" does not provide programming for display on subscribers' digital receivers with 16 by 9 format or high-definition resolution.

¹⁴¹ Cable Databook at 8.

¹⁴² NCTA Comments at 52

¹⁴³ *Id*

¹⁴⁴ *Id* at 51-52.

¹⁴⁵ Comcast Comments at 15.

¹⁴⁶ *Id.* at 23

¹⁴⁷ *Id.* at 24

¹⁴⁸ Cox Comments at 8; Cox Communications, Inc., *Cox Communications Announces Second Quarter Financial Results for 2003* (press release), July 30, 2003

¹⁴⁹ Cox Comments at 8.

¹⁵⁰ *Id*

¹⁵¹ Time Warner Comments at 5; Time Warner, *AOL Time Warner Reports Second Quarter 2003 Results* (press release), July 23, 2003

¹⁵² Time Warner Comments at 6

million basic cable service subscribers and 216,500 digital video subscribers.¹⁵³ At the end of June 2003, the number of Cablevision's digital video subscribers had grown to 597,600.¹⁵⁴ Charter provided digital video service to approximately 2.7 million subscribers as of year-end 2002, and reported a loss of 31,700 digital video subscribers in the first quarter of 2003, and a loss of 47,200 digital video subscribers in the second quarter of 2003.¹⁵⁵

43. Incentives to expand the provision of digital video services were recently furthered by the Commission's approval of rules to implement an agreement between consumer electronics companies and cable operators that will provide consumers with digital television sets that connect to digital cable without a set-top box.¹⁵⁶ The potential availability of a single "plug and play" standard between digital television and digital cable systems is expected to help speed the transition from analog to digital television.¹⁵⁷

44 *Video-on-Demand*. Time Warner launched a commercial trial of video on demand ("VOD") service in 1994, but abandoned the operation in 1997.¹⁵⁸ In 1999, cable operators began market trials of video-on-demand through digital set-top boxes.¹⁵⁹ Today, most of the major cable operators, including Cablevision, Charter, Comcast, Cox, Insight, Mediacom, and Time Warner are testing or actively deploying video on demand services.¹⁶⁰ One analyst estimates that about seven million homes had access to VOD at the end of 2002, up from three million in 2001.¹⁶¹ Unlike pay-per-view services, VOD allows consumers to order video programming from a central server at any time of the day, and to fast-forward, rewind, and pause the programming.¹⁶² In addition to VOD, some cable operators offer subscription

¹⁵³ Cablevision Systems Corp., *Cablevision Systems Corporation Reports Fourth Quarter 2002 Financial Results* (press release), Feb 11, 2003

¹⁵⁴ Cablevision Systems Corp., *Cablevision Systems Corporation Reports Second Quarter 2003 Results* (press release), Aug. 5, 2003.

¹⁵⁵ Charter Communications, Inc., *SEC Form 10-K for the Year-Ended December 31, 2002*, at 12, *Charter Communications Reports First Quarter 2003 Operating Results* (press release), May 7, 2003; *Charter Communications Reports Second Quarter 2003 Financial Results* (press release), July 31, 2003.

¹⁵⁶ *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, 18 FCC Rcd 20885 (2003).

¹⁵⁷ NCTA Comments at 50. See paras 101, 184 *infra*.

¹⁵⁸ For a discussion of the 1994 Time Warner VOD trial see para 191 *infra*.

¹⁵⁹ *1999 Report*, 15 FCC Rcd at 1002 ¶ 52.

¹⁶⁰ NCTA Comments at 53.

¹⁶¹ *Id.*

¹⁶² Pay-per-view is pay television programming for which cable subscribers pay a one time fee for each program viewed. The programming is generally available at pre-set times and in some cases is time shifted across several channels to increase the opportunity for viewing. Once initiated, the program cannot be paused, rewound or fast-forwarded. The programming is cablecast from the operator's headend to all subscribers but only descrambled for those who order the programming. See CableLabs, at <http://www.cablelabs.com/news/glossary.html#P> (visited Oct. 9, 2003)

video-on-demand (“SVOD”), in which the subscriber pays one monthly fee for unlimited access to a library of pre-selected programming.¹⁶³

45. Comcast’s VOD service, ON DEMAND, is available to 20% of Comcast’s subscribers.¹⁶⁴ Comcast expects to make it available to 50% of its subscribers by the end of 2003.¹⁶⁵ Time Warner provides VOD service in all of its cable operating divisions.¹⁶⁶ Time Warner provides three different VOD services: (1) iControl Movies allows subscribers to select from a collection of more than 120 movies, with about one-third of the selection changed each month; (2) iControl Premiums is a SVOD for premium channels, including Cinemax, HBO, Showtime, and the Movie Channel, allowing subscribers to view programs shown on these channels; and (3) iControl Favorites provides subscribers with access to select programming on a number of popular channels, including Biography, Comedy Central, and the Food Channel.¹⁶⁷ Cox’s Entertainment on Demand is available in four markets.¹⁶⁸ The service gives subscribers access to more than 250 hours of movies and allows the customer to control the content using full VCR-like functionality.¹⁶⁹ Another example of VOD service is Cablevision’s Interactive Optimum (“iO”), which is the first VOD service to make high-definition programming available to iO subscribers.¹⁷⁰

46. **High-Definition Television (“HDTV”).** In 2001, Comcast announced the launch of an HDTV service to more than 1.3 million customers.¹⁷¹ Also in 2001, Time Warner agreed to carry the HDTV signals of broadcast television stations in its operating areas, and the HDTV versions of HBO and Showtime in certain areas.¹⁷² Today, cable operators are deploying HDTV nationwide.¹⁷³ Over 60 million television households are passed by cable systems offering HDTV, including 83 of the top 100

¹⁶³ See 2002 Report, 17 FCC Rcd at 26920-23 ¶¶ 39-41.

¹⁶⁴ Comcast Comments at 15

¹⁶⁵ *Id*

¹⁶⁶ Each of Time Warner’s cable operating divisions is a cluster of cable franchises, see http://www.timewarner.com/companies/time_warner_cable_index.adp (visited Dec. 8, 2003) and <http://www.timewarner.com/companies/clusters.adp> (visited Dec. 8, 2003).

¹⁶⁷ Time Warner Comments at 7.

¹⁶⁸ Cox Comments at 9.

¹⁶⁹ SeaChange International, *Cox Communications Selects SeaChange for Video-on-Demand Rollouts Next Year* (press release), Oct. 15, 2003

¹⁷⁰ Cablevision Systems Corporation, *Cablevision Introduces First High-Definition Video On Demand Service* (news release), Sept. 2, 2003.

¹⁷¹ 2001 Report, 17 FCC Rcd at 1265 ¶ 42.

¹⁷² *Id*

¹⁷³ Comcast Comments at 26, NCTA Comments at 46.

designated market areas and 39 markets beyond the top 100. Cable systems are carrying the digital signal of 231 broadcast television stations, as well as non-broadcast HD programming networks.¹⁷⁴

47. Comcast offers at least five HDTV channels in markets such as Los Angeles, California; Chicago, Illinois; Philadelphia, Pennsylvania; San Francisco, California; the Washington, D.C., metropolitan area; Detroit, Michigan; and Atlanta, Georgia, and will soon launch HDTV service in Denver, Colorado.¹⁷⁵ In addition, Comcast and Best Buy have partnered to sell HDTV sets and Comcast Digital Cable in several major cities.¹⁷⁶ In Chicago, Comcast reached similar HDTV marketing deals with 20 local retailers including Abt Electronics.¹⁷⁷ Comcast has similar relationships with Tweeter, Staples, Gateway, RadioShack, and Circuit City.¹⁷⁸ Cox currently offers HDTV service to subscribers in Omaha, Nebraska; Las Vegas, Nevada; Phoenix, Arizona, Fairfax County, Virginia; San Diego California; Oklahoma City, Oklahoma; and Cleveland, Ohio.¹⁷⁹ Time Warner has introduced HDTV in most of its markets, including New York, New York; Houston, Texas; Raleigh, North Carolina; Orlando, Florida; and Minneapolis, Minnesota.¹⁸⁰ Time Warner's HDTV service has attracted over 120,000 subscribers.¹⁸¹ In 2003, Cablevision began offering HDTV set-top boxes to most of its New York-area subscribers.¹⁸² Charter Communications offers HDTV in 14 markets.¹⁸³

48. In addition to the larger markets, cable operators are providing HDTV in some mid-sized and smaller markets and rural areas including Austin, Texas; Portland, Maine; Raleigh-Durham, North Carolina; Omaha, Nebraska; Green Bay, Wisconsin; Las Vegas, Nevada; Little Rock, Arkansas; Toledo, Ohio, Louisville, Kentucky; Indianapolis, Indiana; Fresno, California; and Columbus, Ohio.¹⁸⁴ Smaller and rural markets where HDTV is available include Batavia, New York; Fargo, North Dakota; Palm Desert, California; Sherman, Texas; Waco, Texas; Twin Falls, Idaho; Pittsfield, Massachusetts; Biloxi, Mississippi; New Ulm, Minnesota; Lima, Ohio, Idaho Falls, Idaho; East Cartage, New York; Greenwood, Mississippi; and Youngstown, Ohio.¹⁸⁵

¹⁷⁴ NCTA Comments at 46.

¹⁷⁵ *Id.* at 47

¹⁷⁶ Comcast Comments at 17. Cities include Philadelphia, Pennsylvania; Baltimore, Maryland; Knoxville, Tennessee; Nashville, Tennessee, and Washington, D.C.

¹⁷⁷ Comcast Comments at 17

¹⁷⁸ *Id.* at 17-18

¹⁷⁹ Cox Comments at 8, NCTA Comments at 47.

¹⁸⁰ Time Warner Comments at 9; NCTA Comments at 46

¹⁸¹ Time Warner Comments at 10.

¹⁸² NCTA Comments at 47

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.* at 47-48.

49. NCTA states that cable networks are the leading producers of HDTV content.¹⁸⁶ HBO, for example, provides 70% of its programming in HDTV, and Showtime provides most original movies and many original series in HDTV.¹⁸⁷ Discovery HD Theater offers Discovery's most popular programming in HDTV.¹⁸⁸ A&E Television Networks¹⁸⁹ is producing original series and specials in HDTV.¹⁹⁰ In July 2003, Bravo launched Bravo HD+, featuring music concerts, ballet, theater, and opera in HDTV.¹⁹¹ A new HDTV channel is also being introduced by Starz Encore.¹⁹² Cinemax HD also is scheduled to offer HDTV before the end of 2003.¹⁹³ In 2003, iN DEMAND began providing some movies in HDTV, and plans to launch two new HDTV channels (iNHD and iNHD2) featuring movies, sports and general entertainment.¹⁹⁴ HDNet provides a 24 hour movie network called HDNet Movies and a 24 hour general entertainment network called HDNet, exclusively in high-definition.¹⁹⁵

50. The amount of HDTV sports programming continues to increase. In March 2003, ESPN launched an HDTV channel to carry 100 baseball, hockey and football games in the next year, and it plans to convert all of ESPN's other programming to the technical equivalent of HDTV.¹⁹⁶ Madison Square Garden Network offers many of the New York teams' home games in HDTV.¹⁹⁷ In the Philadelphia and Baltimore/Washington, D.C., markets, Comcast SportsNet is offering more than 200 professional sporting events in HDTV annually.¹⁹⁸ FoxSportsNet produces over 150 games each year in HDTV.¹⁹⁹ In 2003, USA Network carried the U.S. Masters Tournament (Golf) and the U.S. Open Tournament (Tennis) in HDTV.²⁰⁰

¹⁸⁶ *Id.* at 48.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.* at 49.

¹⁸⁹ These include The History Channel, The Biography Channel, and History Channel International.

¹⁹⁰ NCTA Comments at 49.

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ *Id.* at 50.

¹⁹⁴ *Id.*

¹⁹⁵ Mark Cuban, HDNet Presentation, Chairman's Distinguished Speaker Series, FCC, June 12, 2003.

¹⁹⁶ NCTA Comments at 50.

¹⁹⁷ *Id.* at 49.

¹⁹⁸ Comcast Comments at 26.

¹⁹⁹ NCTA Comments at 49.

²⁰⁰ *Id.*

51. *Internet High-Speed Data Services.* In 1996, cable operators were beginning to combine their video service offerings with Internet access.²⁰¹ Also in 1996, a number of cable operators had announced large orders for cable modems.²⁰² Today, cable's high-speed Internet access service is the principal driver of industry growth – contributing approximately half of cable operators' revenue growth.²⁰³

52. Dial-up Internet access remains the most widely-used mode of accessing the Internet.²⁰⁴ As of year-end 2002, approximately 74% of all Internet households were accessing the Internet using dial-up modems.²⁰⁵ It is projected that telephone dial-up will remain the principal means of accessing the Internet until 2005, when it is estimated that 49% will use dial-up access, with the remaining 51% accessing the Internet through cable modem, DSL, and other broadband facilities.²⁰⁶

53. Cable modem access, however, remains the primary means of accessing the Internet over broadband networks. DSL remains the most significant broadband competitor to cable modem service. The cable industry expects industry-wide upgrades enabling the provision of broadband Internet access to residential customers will be completed soon.²⁰⁷ As of year-end 2002, high-speed Internet access services provided over cable were available to 87.5 million homes.²⁰⁸ As of year-end 2002, there were 11.6 million subscribers to cable's high-speed internet access service, and at the end of June 2003, there were an estimated 13.8 million subscribers.²⁰⁹ This compares with 5.8 million residential DSL subscribers at the end of 2002, and an estimated 7 million DSL subscribers at the end of June 2003.²¹⁰ In addition to cable modem and DSL, there were nearly two million subscribers to other broadband

²⁰¹ *1996 Report* 12 FCC Rcd at 4416 ¶ 108

²⁰² *Id.*

²⁰³ Jessica Reif Cohen and Keith Fawcett, *Cable Television*, Merrill Lynch, July 2, 2003, at 1. Kagan World Media asserts that in 2003, they expect high-speed data service “to contribute 12.4% to total residential revenue, the largest piece of the revenue pie after basic service.” *Cable Databook* at 7.

²⁰⁴ Dial-up Internet access does not refer to high-speed Internet access. For an overview of networks and technologies used to deploy advanced telecommunications services, including high-speed Internet services, 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*, 17 FCC Rcd 2844 (2002).

²⁰⁵ *Copernicus Theorem* at 43

²⁰⁶ *Id.* at 44. Broadband technologies include cable modem, telephone company digital subscriber line (“DSL”), broadband wireless, and broadband satellite. Broadband technologies allow users to access the Internet at much greater speeds than are available over traditional dial-up connections. See *1999 Report*, 15 FCC Rcd at 1003-04 ¶¶ 55-56.

²⁰⁷ NCTA Comments at 56.

²⁰⁸ *Copernicus Theorem* at 38

²⁰⁹ NCTA Comments at 57. Morgan Stanley reports 11.1 million high-speed cable modem subscribers at year-end 2002 and estimates 13.4 million subscribers by June 30, 2003. *Copernicus Theorem* at 38.

²¹⁰ *Id.* at 43.

technologies, including satellite and wireless, at year-end 2002.²¹¹ Over the past few years, the cable industry's share of all high-speed Internet access subscribers has been fairly consistent, with 63-65% of all high-speed Internet access subscribers using cable modems.²¹²

54. Some cable operators offer one Internet service provider ("ISP") to customers in a given system.²¹³ For example, Cablevision offers high-speed Internet access service under the brand Optimum Online, Charter offers this service under the Charter Pipeline brand, and Cox offers this service under the Cox High Speed Internet brand. Other cable operators offer consumers a choice among multiple ISPs. For example, Time Warner's cable modem subscribers may select from Road Runner, AOL for Broadband, Earthlink, and in many areas several smaller ISPs as well.²¹⁴ Comcast has agreed to deals with a total of six ISPs,²¹⁵ including Earthlink for distribution in Seattle and Boston,²¹⁶ AOL for

²¹¹ *Federal Communications Commission Releases Data on High-Speed Services for Internet Access*, News Release, June 10, 2003, at 2. See also NCTA Comments at 58.

²¹² *Copernicus Theorem* at 31-34.

²¹³ Many cable providers offer cable modem service through proprietary ISPs. See *2001 Report*, 17 FCC Rcd at 1266-67 ¶¶ 46-47 and n. 136; see also *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Internet Over Cable Declaratory Ruling, Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities, Declaratory Ruling and Notice of Proposed Rulemaking*, 17 FCC Rcd 4798 (2002) ("*High-Speed Access Declaratory Ruling and NPRM*"). In the *High-Speed Access Declaratory Ruling and NPRM*, the Commission concluded that "cable modem service, as it is currently offered, is properly classified as an interstate information service, not as a cable service, and that there is no separate offering of telecommunications service." *High-Speed Access Declaratory Ruling and NPRM*, 17 FCC Rcd at 4802. In a previous case, the U.S. Court of Appeals for the Ninth Circuit concluded that cable broadband service was not a "cable service" but instead was part "telecommunications service" and part "information service." *AT&T v. City of Portland*, 216 F.3d 871 (9th Cir. 2000). In a more recent case, the U.S. Court of Appeals for the Ninth Circuit found that the Commission's Declaratory Ruling agreed with the Court's conclusion that cable broadband service is not "cable service," but disagreed with the Court's conclusion that it is in part "telecommunications service." As such, the Court affirmed in part, vacated in part, and remanded to the Commission for further proceedings the *High-Speed Access Declaratory Ruling and NPRM. Brand X Internet Services v. FCC*, 345 F.3d 1120 (9th Cir. 2003) [No. 02-70518, Oct. 6, 2003].

²¹⁴ Time Warner Comments at 11-12. Time Warner explains that its "provision of the AOL For Broadband service and its obligation to make multiple ISP services available to its customers are subject to compliance with the terms of the FTC Consent Decree and the FCC Order entered in connection with the regulatory clearance of the AOL-Time Warner Merger." AOL Time Warner Inc., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 10-11. The capability to use multiple ISPs is only available in certain Time Warner systems.

²¹⁵ These deals were entered into while seeking, and following, the regulatory approval of Comcast's merger with AT&T Broadband. Christopher Stern, *Cable's Closed Connections*, THE WASHINGTON POST, Oct. 11, 2003, at E1 and E2. *AT&T-Comcast Merger Order*, 17 FCC Rcd at 23296-97 ¶ 130.

²¹⁶ Christopher Stern, *Cable's Closed Connections*, THE WASHINGTON POST, Oct. 11, 2003, at E1 and E2.

Broadband,²¹⁷ and Microsoft²¹⁸

55. As of year-end 2002, Comcast had 3.6 million high-speed Internet access subscribers, and by June 2003, Comcast had nearly 4.4 million high-speed Internet access subscribers.²¹⁹ Cox had approximately 1.4 million high-speed Internet access subscribers at the end of 2002, and nearly 1.7 million subscribers by June 2003.²²⁰ Time Warner had 2.5 million high-speed Internet subscribers at year-end 2002, and 2.9 million subscribers by June 2003.²²¹ As of year-end 2002, Cablevision had 770,100 high-speed Internet access subscribers, and by June 2003, Cablevision had 921,100 subscribers.²²² Charter had 1.1 million high-speed Internet access subscribers at the end of 2002, and 1.3 million subscribers at the end of June 2003.²²³

56. In previous reports, we have reported that a few cable operators offered Internet access services delivered through a television receiver rather than a personal computer.²²⁴ Some of these products were available on a stand-alone basis and could be used independently of a cable television

²¹⁷ AT&T and Comcast have entered into a three-year non-exclusive agreement with Time Warner under which AOL for Broadband is being made available on AT&T Comcast cable systems. The AOL ISP agreement between AT&T Comcast and AOL Time Warner was made in connection with a restructuring agreement by and among AOL Time Warner, Inc., AT&T Corp. and Comcast Corp., Aug 20, 2002. For a discussion of the AOL ISP agreement, see *AT&T-Comcast Merger Order*, 17 FCC Rcd at 23296-99 ¶¶ 130-134. For a discussion of the restructuring agreement, see *id* at 23273-75 ¶¶ 73-77. See also AT&T Corp. and Comcast Corp., *AOL Time Warner, AT&T and Comcast Agree to Restructure Time Warner Entertainment Partnership* (press release), Aug. 21, 2002. Although the terms of the AOL ISP agreement have not been made public, news reports indicate that AOL will pay Comcast roughly \$38 per subscriber; AOL will not compete with Comcast's digital cable content, such as streaming video; and AOL's ISP will have access to a limited number of Comcast's cable systems. See Diane Mermigas, *Comcast makes out AOL TW works it out*, ELECTRONIC MEDIA, Sept. 16, 2002 at <http://www.tvweek.com/deals/091602dicolumn.html> (visited Nov. 21, 2003). Currently, AOL charges \$54.95 per month for its AOL for Broadband-Cable/DSL Plan America Online, *Choose by Plan. Select the Right Price Plan*, at http://free.aol.com/microsite/choose_plan.adp?promo=456341&session_id=496004268 (visited Nov. 21, 2003).

²¹⁸ *AT&T-Comcast Merger Order*, 17 FCC Rcd at 23296-97 ¶ 130. Comcast has agreed to offer Microsoft an access agreement on terms no less favorable than those provided to other ISPs with respect to specified cable systems. See also Comcast Corporation, *SEC Form 10-K, for the Fiscal Year Ended December 31, 2002*, at 8.

²¹⁹ Comcast Holdings Corp., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 4; *Comcast Reports Second Quarter 2003 Results* (press release), July 31, 2003.

²²⁰ Cox Communications, Inc., *SEC Form 10-K for the Year-Ended December 31, 2002*, at 6; *Cox Communications Announces Second Quarter Financial Results for 2003* (press release), July 30, 2003. Cox data subscribers can establish up to seven different e-mail addresses

²²¹ AOL Time Warner, Inc., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 8; *AOL Time Warner Reports Second Quarter 2003 Results* (press release), July 23, 2003.

²²² Cablevision Systems Corp., *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 5, *Cablevision Systems Corporation Reports Second Quarter 2003 Financial Results* (press release), Aug. 5, 2003.

²²³ Charter Communications, Inc., *SEC Form 10-K for the Year-Ended December 31, 2002*, at 12; *Charter Communications Reports Second Quarter 2003 Financial Results* (press release), July 31, 2003.

²²⁴ *2002 Report*, 17 FCC Rcd at 26926 ¶ 48.

subscription. Others, however, were co-marketed through the cable television provider. Using the television as an Internet device has not always been commercially successful.²²⁵ For example, American Online announced that effective November 30, 2003, it would no longer offer the AOLTV television-based Internet access service;²²⁶ and WorldGate sold its interactive television property rights to TVGateway which focuses on interactive programming guides, rather than Internet access services.²²⁷ Microsoft's MSN-TV (formerly WebTV) continues to offer Internet access services using a television.²²⁸

57. *Telephone Services Offered by Cable Operators.* Some cable companies, which currently serve 2.5 million residential subscribers with traditional circuit-switched telephony, are pursuing IP telephony.²²⁹ These companies include Comcast, Cox, Time Warner, Cablevision, Charter, Insight Communications, and Armstrong Cable.²³⁰ To ensure interoperability between vendors of IP telephony equipment, CableLabs created PacketCable to develop an open architecture that would manage delivery of IP services over cable modem networks.²³¹ Cable operators differ as to whether their telephone service will be a primary service with back-up powering in case of a power outage, or a secondary line service without back-up powering.²³² Analysts expect these cable companies will begin to position the service as a primary line service using battery back-up powering, rather than network powering.²³³

²²⁵ For example, in 2001, Charter was using WorldGate television-based internet access service to provide service to 9,000 TV-based Internet subscribers. Charter Communications, Inc., *SEC Form 10-K for the Year Ended December 31, 2001*, at 15. At the end of 2002, however, Charter reported that it offered television-based Internet access service in a very limited number of markets. Charter Communications, Inc., *SEC Form 10-K for the Year Ended December 31, 2002*, at 14.

²²⁶ *AOLTV Shutdown Notice*, at <http://www.aoltv.com> (visited Nov. 17, 2003).

²²⁷ For a summary of WorldGate's business plans, see http://www.wgate.com/company/about_Wgate/. For a description of TVGateway's services, see *TVGateway releases upgraded version of its IPG*, July 10, 2002, <http://www.indiantelelevision.com/tec/y2k2/july/julytec7.htm> (visited Nov. 17, 2003).

²²⁸ For a description of the MSN TV service, see <http://www.msntv.com/pc/default.aspx>.

²²⁹ NCTA Comments at 22. A circuit-switched cable telephony voice call and an IP telephony voice call both begin with special equipment that connects a household's twisted pair infrastructure with the cable infrastructure. 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 Internet for IP processing. 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 any path that does not resist transfer.

²³⁰ *Id.*; *Copernicus Theorem* at 45.

²³¹ *Id.* During 2003, PacketCable has focused on testing and certifying IP telephony products. See para. 182 *infra*.

²³² Richard Bilotti, Megan Lynch, Benjamin Swinburne, and Simon Flannery, *Cable/Satellite & Telecom. Cross-Industry Insights: IP Telephony*, Morgan Stanley, Oct. 9, 2003, at 4 ("*Cross-Industry Insights*").

²³³ *Id.* Some believe the ubiquity of wireless phones reduces the need for a back-up powered landline service and the cost of a battery for back-up power has declined. *Id.* Battery back-up powering is less expensive than network powering, and the latter requires that the cable operator commit the entire footprint to telephony. *Copernicus Theorem* at 45.

58. Cox began offering local circuit-switched telephone service in 1997 to 1,500 subscribers in Orange County, California.²³⁴ As of June 30, 2003, circuit-switched telephone service was available to nearly 4.6 million subscribers, and over 800,000 subscribed.²³⁵ Cox Digital Telephone is facilities-based and network powered, offering backup in the event of power outages.²³⁶ With more than one million residential access lines in 11 markets, Cox is the 12th largest local telephone company, the third largest in California, and the second largest in many of the states in which it operates.²³⁷ Cox averages 18.4% penetration in areas where the company's telephone service has been marketed, and processes 29 million calls a day.²³⁸ Cox also offers a long-distance package and at the end of March 2003, 77% of Cox Digital Telephone subscribers chose Cox's long distance service.²³⁹ As of June 30, 2003, Comcast offered circuit switched telephone service to 9.2 million homes and had 1.4 million subscribers.²⁴⁰ In some areas, Comcast uses its upgraded cable network to provide circuit-switched local telephone service and to resell third-party long distance service to its telephone subscribers.²⁴¹ Cablevision sells its Cablevision Optimum Telephone Service to approximately 11,700 residential subscribers in New York City, Long Island, and Connecticut. Charter has approximately 23,700 cable telephony subscribers²⁴²

59. Although most cable operators are testing IP telephony, a few cable operators have made the service commercially available on part or all of their cable systems.²⁴³ Cablevision began testing its Optimum Voice service in Nassau County in January 2003, started selling the service on Long Island, New York, in September 2003, and made the service available to all its cable broadband subscribers in metropolitan New York in November 2003.²⁴⁴ Cablevision's IP telephony service is tied to its Optimum Online high-speed Internet service, which 33% of its basic subscribers currently take²⁴⁵ Time Warner

²³⁴ Cox Comments at 11.

²³⁵ *Id.*

²³⁶ *Id.* at 11-12

²³⁷ *Id.* at 11.

²³⁸ *Id.*

²³⁹ *Id.* at 12

²⁴⁰ Comcast Comments at 15

²⁴¹ Comcast Corporation, *SEC Form 10-K for the Fiscal Year Ended December 31, 2002*, at 6.

²⁴² NCTA Comments at 23.

²⁴³ Jessica Cohen and Keith Fawcett, *Cable Television*, Merrill Lynch, July 2, 2003, at 1. With the exception of Cablevision, Morgan Stanley does not expect cable operators to make IP telephony widely available in their cable systems until late 2004 at the earliest. *Copernicus Theorem* at 45

²⁴⁴ Ben Charny, *Cablevision Adds VoIP to Broadband Menu*, CNET NEWS.COM, Nov. 11, 2003, at <http://news.com.com/2100-7352-5106133.html> (visited Nov. 25, 2003); Yuki Noguchi, *Identity Crisis Internet Services Challenge Definition of 'Phone Company'*, THE WASHINGTON POST, Oct. 23, 2003, at E1; John H. Higgins, *Cablevision Rolling Out IP Phone Service*, BROADCASTING & CABLE, Nov. 17, 2003, at 12.

²⁴⁵ For \$34.95, subscribers get unlimited local and long distance minutes, call waiting, caller ID, call forwarding, call return, and three-way calling. The service, however, is not life-line service since it will fail if the power goes (continued . . .)

began deploying a commercial IP telephony service, which it markets as Digital Phone service, in Portland, Maine, in May 2003.²⁴⁶ Time Warner recently announced an agreement with Sprint and WorldCom Inc. to offer IP telephony to all its subscribers. Sprint and WorldCom Inc. will assist Time Warner in providing Digital Phone, termination of IP telephony to the public switched telephone network, delivery of enhanced 911 service, local number portability, and carrying long distance traffic.²⁴⁷ In December 2003, Cox introduced IP telephony in Roanoke, Virginia.²⁴⁸ Cox explains, however, that its telephone offerings will remain a hybrid, with circuit switches serving as a backbone for a national architecture and IP telephony serving smaller markets.²⁴⁹ Comcast is testing IP telephony in Philadelphia and plans to offer IP telephony in three markets in 2004.²⁵⁰ Charter began an IP telephony technical trial in Wausau, Wisconsin, in early 2003 and plans to test the service in other markets later this year.²⁵¹ Analysts, however, do not expect Charter to commercially deploy IP telephony for at least a couple of years.²⁵²

60 **Digital Video Recorders.** Digital Video Recorders (“DVRs”), also called Personal Video Recorders (“PVRs”), allow video programming to be stored on a hard disk, which can then be played back at any time. DVR features include fast-forward, pause, and the ability to pause live television. Stand-alone DVRs are available.²⁵³ Cable operators are integrating DVR functionality into digital set-top boxes. Time Warner is the most aggressive at deploying DVR service, will have 250,000 subscribers by the end of September 2003, and expects to have 500,000 subscribers by the end of 2003.²⁵⁴ Comcast is testing DVR capabilities in Philadelphia and markets around Washington, D.C., and plans to integrate DVR capabilities into its VOD service.²⁵⁵ Comcast plans to begin offering DVR service in the fourth

(Continued from previous page)

out in a subscriber's home. John H. Higgins, *Cablevision Rolling Out IP Phone Service*, BROADCASTING & CABLE, Nov. 17, 2003, at 12.

²⁴⁶ Time Warner has signed up 5,500 subscribers. Yuki Noguchi, *Identity Crisis: Internet Services Challenge Definition of 'Phone Company'*, THE WASHINGTON POST, Oct. 23, 2003, at E1.

²⁴⁷ Brigitte Greenberg, *Time Warner Cable Rolling Out VoIP with Help from MCI, Sprint*, COMMUNICATIONS DAILY, Dec. 9, 2003, at 1-2.

²⁴⁸ Brigitte Greenberg, *Cox Switches from Circuit-Switch to VoIP in New Telephony Debut*, COMMUNICATIONS DAILY, Dec. 16, 2003, at 3.

²⁴⁹ *Id.*

²⁵⁰ Brigitte Greenberg, *Wall St. Analysts Told of Cable's New Push into Telephony*, COMMUNICATIONS DAILY, Dec. 12, 2003, at 1-2.

²⁵¹ NCTA Comments at 23.

²⁵² *Cross-Industry Insights* at 2.

²⁵³ TiVo and Replay TV both offer stand-alone DVR services that are compatible with cable, broadcast, and DBS. Time Warner Comments at 8-9.

²⁵⁴ Alex Zavistovich, *DVRs Integrated with Set-Tops to Bloom by 2007*, CT PIPELINE, Nov. 4, 2003, at <http://www.broadband-pbimedia.com/pipeline/previous/pipe110403.html> (visited Nov. 21, 2003).

²⁵⁵ Comcast Comments at 30.

quarter of 2003 and to have DVR service available to all subscribers by the end of 2004.²⁵⁶ Comcast's DVR service will be priced at \$9.95 per month. Cox has launched its DVR service in Gainesville, Florida and Northern Virginia and will begin offering in San Diego, Santa Barbara and Humboldt, California; Phoenix, Arizona; Las Vegas, Nevada; and Cleveland, Ohio.²⁵⁷ This will make Cox's DVR service available to 35% of Cox's subscribers by year-end 2003.²⁵⁸ Cox's DVR service will cost \$9.99 plus lease price of the integrated DVR digital set-top box.²⁵⁹ In July 2003, Charter ordered 100,000 digital media center boxes with DVR capability.²⁶⁰ DVR penetration is projected to reach 24.7 million homes by 2007, with 10.9 million homes subscribing to cable-based DVR service.²⁶¹

B. Direct-to-Home Satellite Services

1. Direct Broadcast Satellite

61. DBS service is a nationally distributed subscription service that delivers video and audio programming via satellite to a small parabolic "dish" antenna located at the subscriber's residence. The Commission first authorized DBS service in 1988.²⁶² DBS service was not introduced until 1990 when PrimeStar launched a medium power satellite and began offering 11 channels in 1991.²⁶³ In 1993, Hughes launched the first U.S. high power DBS service, and in 1994 began marketing its service under the DirecTV brand name, distributing over 50 channels of subscription and pay-per-view programming.²⁶⁴ USSB later entered the market using transponders on Hughes' satellite, but sold only premium subscription content, such as HBO and Cinemax. In 1996, EchoStar initiated its digital service

²⁵⁶ *Comcast Adds 472,000 Cable Modem Subscribers in Q3*, CONVERGE NETWORK DIGEST, Oct. 30, 2003, at <http://www.convergedigest.com/DSL/lastmilearticle.asp?ID=9252> (visited Nov. 24, 2003).

²⁵⁷ Cox Comments at 8; Jeff Baumgartner, *Cox Bullish on the DVR*, CED Broadband Direct, Oct. 24, 2003, at <http://www.cedmagazine.com/cedailydirect/1003/cedaily031024.htm#3> (visited Nov. 21, 2003).

²⁵⁸ Jeff Baumgartner, *Cox Bullish on the DVR*, CED Broadband Direct, Oct. 24, 2003, at <http://www.cedmagazine.com/cedailydirect/1003/cedaily031024.htm#3> (visited Nov. 21, 2003).

²⁵⁹ *Id.*

²⁶⁰ Digeo Newsletter, August 2003, at <http://www.digeo.com/newsroom/newsletter.jsp> (visited Nov. 21, 2003).

²⁶¹ DBS-based DVR service and consumer electronics' retail sales of DVRs are projected to account for the remaining 13.8 million homes with DVR service. Alex Zavistovich, *DVRs Integrated with Set-Tops to Bloom by 2007*, CT PIPELINE, Nov. 4, 2003, at <http://www.broadband-pbimedia.com/pipeline/previous/pipe110403.html> (visited Nov. 21, 2003).

²⁶² For a chronology of DBS developments, see Kagan World Media, *The State of DBS 2002*, Nov. 2001, at 39-72 ("*Kagan State of DBS 2002*").

²⁶³ PrimeStar initially offered seven "superstations" (FCC licensed, non-network broadcast stations), three pay-per-view stations, and one foreign language station. See *Implementation of Section of the Cable Television Consumer Protection and Competition Act of 1992, Direct Broadcast Satellite Public Service Obligations*, 8 FCC Rcd at 1591 (1993). PrimeStar was a joint venture between six cable MSOs and GE American Communications. In 1994, PrimeStar began using digital technology to provide approximately 70 channels to subscribers, and by 1997 it began offering 160 channels.

²⁶⁴ *1994 Report*, 9 FCC Rcd at 7474 ¶63.

using a single satellite. DirecTV acquired PrimeStar in April 1999 and USSB in May 1999. Presently, DirecTV provides service from a fleet of seven satellites, and EchoStar provides service from a fleet of nine satellites.²⁶⁵

62. Currently, four operators hold licenses to provide DBS service: EchoStar (marketed as the DISH Network), DirecTV, Dominion Video Satellite, Inc. (marketed as Sky Angel), and Cablevision's Rainbow DBS (marketed as Voom).²⁶⁶ All four currently offer subscription services.²⁶⁷ Voom initiated its commercial service on October 15, 2003.²⁶⁸ The service is delivered from the 61.5° degree orbital slot, which will allow it to cover the easternmost part of the continental United States.²⁶⁹ Voom is attempting to distinguish itself from its competitors by accentuating its high-definition programming. Voom will include 39 high-definition channels, 28 cable channels and over-the-air local digital channels.²⁷⁰ Voom's equipment package costs \$750, which includes a satellite dish, set-top receiver, remote control, digital off-air antenna, and installation charge. Monthly service fees begin at \$40 per month.²⁷¹

²⁶⁵ DirecTV Comments at 1. For information regarding EchoStar's satellite fleet, see Dish Network, at <http://www.dishnetwork.com/content/aboutus/satellites/index.shtml>.

²⁶⁶ Last year, we reported that Compass Systems, Inc., a company 100% owned by Northpoint Technologies, Ltd., filed an application for a construction permit for a DBS system and for authorization for a terrestrial platform in the DBS frequencies. On May 30, 2003, Compass Systems' application was found unacceptable for filing and was dismissed without prejudice. See Letter from Don Abelson, Chief, International Bureau, FCC, and John Muleta, Chief, Wireless Telecommunications Bureau, FCC, to Antoinette Cook Bush, Vice President, Compass Systems, Inc (May 30, 2003).

²⁶⁷ Dominion holds licenses for eight channels at 61.5° W.L. orbital location. Under a 1996 agreement, Dominion leased capacity on EchoStar's EchoStar III satellite for its eight licensed channels, six of which it has sub-leased to EchoStar, which uses them for Dish Network programming, and two of which it uses to transmit its Sky Angel services. See *Dominion Video Satellite, Inc. Application for Minor Modification of Authority to Construct and Launch and to Continue Construction and Launch of Planned Satellite at 61.5° W.L., Application for Additional Time to Construct and Launch Direct Broadcast Satellites, Application for Launch Authority*, 14 FCC Rcd 8182 (1999) (granting Dominion authority to commence operation of a DBS service using EchoStar's EchoStar III satellite in the 61.5° W.L. orbital location).

²⁶⁸ Cablevision, *Cablevision's Rainbow DBS Introduces Voom – Nation's First Television Service Designed to Meet Demand of Growing Underserved HDTV Market* (press release), Oct. 15, 2003 ("Voom Press Release").

²⁶⁹ Cablevision launched its Rainbow I DBS spot-beam satellite on July 17, 2003. Cablevision asserts that by using spot-beam technology, the satellite can reach 143 DMAs, including 76 of the top 100 and 67 of the remaining 110. See also Mavis Scanlon and Shirley Brady, *Cablevision Calls It Voom*, CABLE WORLD, Sept. 15, 2003, at http://www.cableworld.com/ar/cablevision_calls_voom (visited Oct. 6, 2003).

²⁷⁰ Voom states that 21 of these channels are exclusive commercial free channels supplied by Cablevision's Rainbow Media subsidiary. In addition to the HD channels, Voom will offer several cable channels, including Disney Channel, A&E, FX, and AMC, as well as over-the-air digital local broadcast channels delivered in standard definition. Voom states that by February 2004 its programming will include 39 HD channels and 88 standard definition channels. See *Voom Press Release*.

²⁷¹ Voom is waiving these fees until February 2004. See Bill Lammers, *New Satellite Service Promises More Choices for HDTV Owners*, THE PLAIN DEALER, Dec. 4, 2003.