

totaled \$264 million. The increase resulted from increased purchases of customer premise equipment, primarily for high-definition television and digital video recorders, and increased expenditures on “scalable” infrastructure¹³⁵ related to the deployment of advanced services.¹³⁶

3. Advanced Services

36. In addition to traditional analog video services, most cable operators offer subscribers advanced video services, including digital video, video-on-demand, digital video recorders, and high-definition television, and nonvideo advanced services, including high-speed Internet access and telephony (circuit-switched telephony and/or voice over Internet protocol telephony).¹³⁷ Mid-sized and smaller cable operators also are deploying advanced services.¹³⁸ 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.¹³⁹ Our review of six mid-sized and smaller cable operators shows that all offer digital cable service and high-speed Internet service but not all offer video-on-demand, digital video recorders, high-definition television, and telephone service.

37. **Digital Video Services.** Cable operators offer digitally-compressed video channels to cable subscribers. Digital compression technologies allow anywhere from six to 12 video channels to be compressed into the capacity previously used to provide just one standard six MHz analog channel. Digital cable subscribers obtain programming by selecting one or more digital service tiers. Digital tiers may include a movie tier, a variety tier, a sports tier, and a non-English-language tier. Digital cable

¹³⁵ Scalable infrastructure includes costs, not related to customer premise equipment or the nonbroadcast network, to secure growth of new customers, revenue units and additional bandwidth revenues or provide service enhancements (e.g., headend equipment, high-speed data access equipment, host digital terminals, video and telephony transport, advertising insertion equipment, and telephone switches).

¹³⁶ Charter Communications Inc., *Charter Communications Reports Second Quarter 2004 Financial and Operating Results* (press release), Aug. 9, 2004.

¹³⁷ 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 to medium businesses called Comcast Workplace. Similarly, Time Warner also offers a business Internet service called Road Runner Business Class to small and medium-sized businesses, home offices, and telecommuters. Subscribers to these services are included in the reported numbers. Cable companies also sold \$1.9 billion in services to business in 2003 under separately-run subsidiaries. For example, Cox Business Services offers high-speed Internet access, local and long distance telephone, advanced voice and data transport; Cox Enterprise Connectivity Solutions connects businesses to branch locations and remote workers; Charter Business offers high-speed Internet access services and video services to small and large businesses; and Time Warner's Road Runner Business Class offers high-speed Internet access to small and mid-sized businesses. Small operators also offer advanced services to business customers. Bresnan, for example, provides high-speed Internet access, voice and data transport and video to large and small businesses under its Bresnan Business Services subsidiary; Susquehanna Communications offers businesses advanced communications services, including local and long distance telephone services, high-speed Internet access, and data transport and video; and Sunflower Broadband offers Sunflower Broadband Business Services providing high-speed Internet, telephone service, and professional IT service. Cable Databook at 13; See Cox Communications, Inc., <http://www.coxbusiness.com> (visited Dec. 28, 2004); Charter Business, <http://www.charter-business.com> (visited Dec. 28, 2004); Time Warner, Inc., [http://www.rrbiz.com/Road Runner/index.asp?sid=1](http://www.rrbiz.com/Road%20Runner/index.asp?sid=1) (visited Dec. 28, 2004); Bresnan Communications, <http://www.bresnan.com/unst/products/business> (visited Dec. 28, 2004); Susquehanna Communications, <http://www.suscom.com/home/business.php> (visited Dec. 28, 2004); Sunflower Broadband, <http://www.sunflowerbroadband.com/business> (visited Dec. 28, 2004).

¹³⁸ See ACA Comments at Exhibit 2.

¹³⁹ *Id.*

subscribers may obtain additional programming by selecting one or more premium digital tiers, such as HBO, Showtime, Cinemax, The Movie Channel, Starz!, and international programming.¹⁴⁰ In addition, digital cable subscribers may choose programming from a high-definition digital tier.¹⁴¹ In addition to digital cable, cable operators are also deploying interactive digital services, such as single tuner or dual-tuner digital video recorders, and video-on-demand.¹⁴² The cable industry reported that the number of digital cable subscribers increased from 20.6 million at the end of June 2003 to 22.9 million at the end of March 2004.¹⁴³

38. In 2003, Comcast ended the year with nearly 7.7 million digital cable subscribers, representing a penetration rate of nearly 36 percent of basic cable subscribers.¹⁴⁴ At the end of June 30, 2004, Comcast offered digital cable service to all of its 21.4 million subscribers and had 8.1 million digital cable subscribers, representing 37.5 percent of basic video cable subscribers.¹⁴⁵ Comcast also offers a Spanish-language tier that includes ten digital TV networks and eight audio channels.¹⁴⁶ In addition to premium movie channel tiers, Comcast offers premium sports packages to its digital cable subscribers, including NASCAR IN CAR, MLB Extra Innings, Major League Soccer Direct Kick, ESPN GamePlan (collegiate sports), NHL Center Ice, and NBA League Pass.¹⁴⁷ During 2003, Cox added 82,967 digital cable subscribers and ended the year with over 2.1 million digital cable subscribers, representing 34 percent of its basic video subscriber base.¹⁴⁸ As of June 30, 2004, Cox digital cable was available to 99 percent of its 6.3 million basic cable subscribers, and it had 2.3 million digital cable subscribers, representing 36 percent of basic cable subscribers.¹⁴⁹ In 2003, Time Warner added 602,000 net digital video subscribers to reach a total of 4.3 million digital video subscribers, representing 40 percent of basic cable subscribers.¹⁵⁰ By June 30, 2004, the number of Time Warner's digital video subscribers had grown to 4.6 million, representing 42 percent of basic video cable subscribers.¹⁵¹ At year-

¹⁴⁰ The premium digital tiers require subscription to the digital service. To receive a digital premium channel, a subscriber must subscribe to the premium channel. For example, to receive digital HBO, a subscriber must subscribe to HBO.

¹⁴¹ The high-definition tier of programming requires subscription to the digital service and a high-definition set-top box. Some high-definition programming is available at no additional charge. For example, the high-definition programming of the broadcast networks is often available at no additional charge. In addition, high-definition programming from the premium channels is often included with a subscription to the premium movie channels. Other high-definition programming may require additional fees. For example, Discovery HD Theater may require additional fees.

¹⁴² NCTA Comments at 34. These interactive services offered by a cable company require subscription to the digital service. The digital video recorder service offered by cable operators also requires a DVR set-top box.

¹⁴³ *Id.* at 33-34; 2003 Report, 19 FCC Rcd at 1637 ¶ 41.

¹⁴⁴ Comcast Corp., *Comcast Full Year and Fourth Quarter Results Meet or Exceed All Operating and Financial Targets Setting Stage for Continued Growth in 2004* (press release), Feb. 11, 2004.

¹⁴⁵ Comcast Corp., *Comcast Reports Second Quarter 2004 Results* (press release), July 28, 2004.

¹⁴⁶ Comcast Comments at 26.

¹⁴⁷ *Id.* at 27.

¹⁴⁸ Cox Communications Inc., *Cox Communications Announces Fourth Quarter and Full-Year Financial Results for 2003* (press release), Feb. 12, 2004.

¹⁴⁹ Cox Communications Inc., *Cox Communications Announces Second Quarter and Year-to-Date Financial Results for 2004* (press release), July 29, 2004.

¹⁵⁰ Time Warner Inc., *Time Warner Reports Results for 2003 Full Year and Fourth Quarter* (press release), Jan. 28, 2004.

¹⁵¹ Time Warner Inc., *Time Warner Inc. Reports Second Quarter 2004 Results* (press release), July 28, 2004.

end 2003, Cablevision had 905,495 subscribers to its Interactive Optimum (iO) digital video service, representing a penetration rate of 30.8 percent of basic subscribers.¹⁵² Charter provided digital video service to approximately 2.7 million subscribers as of year-end 2003, representing 42 percent of basic video subscribers.¹⁵³ Over the six months ending June 2004, Charter lost both basic video subscribers and digital video subscribers. As of June 2004, Charter had approximately 2.6 million digital video subscribers, representing 43 percent of basic video subscribers.¹⁵⁴

39. In 2003, the Commission adopted rules based on an agreement between consumer electronics companies and cable operators that will enable television sets to be built with “plug and play” functionality for one-way digital cable services, which include typical cable programming services and premium channels like HBO and Showtime.¹⁵⁵ For these services, consumers will be able to plug their cable directly into their digital television set without the need of a set-top box. Consumers, however, will have to obtain a security card (often called a CableCARD), from their local cable operator, to be inserted into the television set. Consumers still need a set-top box to receive two-way services (e.g., video-on-demand), and the cable and consumer electronics industries continue to work on an agreement for two-way “plug and play” functionality.¹⁵⁶ Consumer electronics manufacturers have already begun selling digital cable ready television sets with over-the-air integrated DTV tuners as well as cable tuners.¹⁵⁷

40. *Video-on-Demand (VOD)*. VOD allows subscribers to order video programming from a central server at any time of day, and to fast-forward, rewind, and pause the programming.¹⁵⁸ In most cases, subscribers receive unlimited viewing of a VOD program for 24 hours. Some cable operators also offer subscription video-on-demand (SVOD) where subscribers pay a monthly fee for unlimited access to a library of pre-selected programming. Other cable operators offer near video-on-demand (NVOD) which typically features a schedule of popular movies and events offered on a staggered-start basis (e.g., every 15 to 30 minutes). Cable companies view VOD as a competitive service to DVD/VHS rentals. Most of the major cable companies have deployed VOD services.¹⁵⁹ In 2003, there were 12.6 million digital

¹⁵² Cablevision Systems Corp., *Cablevision Systems Corporation Reports Fourth Quarter and Full Year 2003 Results* (press release), Mar. 2, 2004.

¹⁵³ Charter Communications Inc., *Charter Reports Fourth Quarter and Year 2003 Financial and Operating Results* (press release), Feb. 19, 2004.

¹⁵⁴ Charter Communications Inc., *Charter Reports Second Quarter 2004 Financial and Operating Results* (press release), Aug. 9, 2004.

¹⁵⁵ *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).

¹⁵⁶ See para. 187 *infra*.

¹⁵⁷ CEA Comments at 8. With most cable systems, use of the digital cable ready television set requires that cable subscribers obtain a CableCARD containing security and other circuitry for particular local cable systems. As we reported last year, the CableCARD is a removable security module which, when inserted into an OpenCable certified device, enables delivery of digital video programming and other services. CableCARDS are provided directly by the cable operator to customers who request them. CableLabs, at <http://www.cablelabs.com/news/glossary.html#C> (visited Oct. 5, 2004). See para. 187 *infra*.

¹⁵⁸ VOD differs from PPV. PPV 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.

¹⁵⁹ NCTA Comments at 23. Cablevision, Charter, Comcast, Cox, Insight, Mediacom, and Time Warner offer VOD service.

subscribers with VOD capability, 10.0 million digital subscribers with NVOD capability, and 8.2 million homes with SVOD capability.¹⁶⁰

41. Comcast's ON DEMAND service allows digital cable subscribers to choose from a library of movie, sports, and news, and start them at any time. In addition to programming from established content providers, such as Discovery Networks, CBS, BET, and MTV, Comcast's VOD service also includes programming from new, and less well known, content providers.¹⁶¹ At the end of 2003, Comcast's VOD service was available to 50 percent of its cable subscribers.¹⁶² Comcast expects to make ON DEMAND available to 85 percent of its subscribers by the end of 2004.¹⁶³ Cox's Entertainment on Demand gives subscribers in selected markets access to hundreds of movies and other programming with full VCR-like functionality.¹⁶⁴ Digital cable subscribers can access Entertainment on Demand with their existing Cox cable box, which communicates with Cox's servers to stream and control movies.¹⁶⁵ Time Warner maintains that it leads the industry in deploying VOD and SVOD services.¹⁶⁶ Time Warner offers these services to all of its 31 cable operating divisions.¹⁶⁷ Time Warner provides two VOD services: Movies on Demand allows Time Warner digital cable subscribers to select among hundreds of movies, and Premiums on Demand allows Time Warner digital cable subscribers unlimited instant access to movies offered on the premium movie channels (i.e., HBO, Showtime, Cinemax, and the Movie Channel) for a monthly fee.¹⁶⁸ Cablevision's Interactive Optimum (iO) digital cable service provides a VOD and SVOD.¹⁶⁹ Cablevision's SVOD service includes HBO, Cinemax, Anime Network, Showtime, Disney Channel, and IFC Uncensored which offers independent films and original series.¹⁷⁰ Charter OnDemand offers a near VOD service that allows digital cable subscribers to pause, rewind, and fast-forward movies offered at multiple start times, rather than instant access.¹⁷¹

42. **Digital Video Recorders (DVRs).** DVR service allows subscribers to record programming onto a hard drive located in a set-top box, which can then be played back at any time. DVR features include fast-forward, pause, and the ability to pause live television. Cable operators are integrating DVR functionality into digital set-top boxes and are expected to have approximately 1.4 million DVR

¹⁶⁰ Cable Databook at 12.

¹⁶¹ Comcast Comments at 31.

¹⁶² Comcast Corp., *Comcast Full Year and Fourth Quarter Results Meet or Exceed All Operating and Financial Targets Setting Stage for Continued Growth in 2004* (press release), Feb. 11, 2004.

¹⁶³ Louis Chunovic, *The Success Story Wall Street Ignores*, BROADCASTING & CABLE, Aug. 30, 2004, at 28.

¹⁶⁴ For a description of Entertainment on Demand, see <http://www.cox.com/digitalcable/eod/faq.asp> (visited Sept. 10, 2004).

¹⁶⁵ *Id.*

¹⁶⁶ For an overview of Time Warner Cable, see http://www.timewarner.com/companies/time_warner_cable_index.adp (visited Sept. 10, 2004).

¹⁶⁷ *Id.* Each of Time Warner's cable operating divisions is a cluster of cable franchises, see <http://www.timewarner.com/companies/clusters.adp> (visited Sept. 10, 2004).

¹⁶⁸ For an overview of Time Warner's VOD and SVOD offerings, see <http://www.timewarnercable.com/corporate/products/digitalcable/moviesondemand.htm> and <http://www.timewarnercable.com/corporate/products/digitalcable/premiumsondemand.html> (visited Sept. 10, 2004).

¹⁶⁹ For an overview of Cablevision's VOD and SVOD services, see http://www.io.tv/index.jhtml?pageType=on_demand (visited Sept. 10, 2004).

¹⁷⁰ *Id.*

¹⁷¹ For an overview of Charter's VOD service, see <http://www.charter.com/services/ondemand/ondemand.aspx> (visited Sept. 10, 2004).

subscribers by the end of 2004.¹⁷² Most cable operators are offering dual tuner DVRs that allow a subscriber to record one or more programs while watching another program.¹⁷³ Comcast's DVR service enables subscribers to record between 30 and 50 hours of programming and most of its DVRs include dual tuners that allow a subscriber to record at least two programs at once while watching a third program.¹⁷⁴ At the end of 2003, Comcast's DVR service was available to 10 percent of basic subscribers.¹⁷⁵ By June 2004, Comcast's DVR service was available to 50 percent of its digital cable subscribers, and by year-end Comcast expects DVR service to be available to 100 percent of its digital subscribers.¹⁷⁶ Cox offers DVR service to 35 percent of its basic cable subscribers.¹⁷⁷ Cox has announced that 95 percent of its markets will have access to DVR service by the end of 2004.¹⁷⁸ Cox's DVR subscribers have dual tuner recording capabilities and an enhanced interactive guide.¹⁷⁹ The dual tuner software, which is automatically downloaded to the subscriber's set-top box, allows subscribers to record two programs simultaneously while watching a previously recorded program, or watch a live program while recording an additional program.¹⁸⁰ The enhanced DVR navigation service will allow subscribers to set preferences to store first-run episodes of a favorite show; a favorite show on any channel where it appears; or a favorite show only in its prime time slot.¹⁸¹ Viewers search for programs using an on-screen keyboard and find programs by entering keywords such as actor, director or subject.¹⁸² Comcast DVR service is generally \$9.95 per month in addition to the cost of the digital tier of service.¹⁸³ Cox's DVR service is available for \$4.95 per month, plus the lease price of a DVR set-top box, which is \$9.95 per month.¹⁸⁴ Time Warner offers DVR service in 30 of its 31 divisions and had 458,000 subscribers at the end of March 2004.¹⁸⁵ Charter offers DVR service in a limited number of its service

¹⁷² NCTA Comments at 35.

¹⁷³ Television sets and products with one-way plug-and-play functionality through a CableCARD currently are not able to offer similar dual-tuner DVR functionality unless the device is equipped to receive and the subscriber orders two or more CableCARDS. The Commission will monitor progress in making multistream CableCARDS available to subscribers as quickly as possible. See para. 39 *supra*, para. 187 *infra*.

¹⁷⁴ Comcast Comments at 33. See Comcast Corp., <http://www.comcast.com> (visited Jan. 14, 2005).

¹⁷⁵ Comcast Corp., *Comcast Full Year and Fourth Quarter Results Meet or Exceed All Operating and Financial Targets Setting Stage for Continued Growth in 2004* (press release), Feb. 11, 2004.

¹⁷⁶ Comcast Comments at 33. Comcast's DVR service is available in Albuquerque, New Mexico; northern Virginia; Montgomery County, Maryland; selected systems in New Jersey; Charleston, South Carolina; and Panama City, Sarasota and Fort Myers/Naples, Florida. NCTA Comments at 36.

¹⁷⁷ *Id.* at 35. Areas where Cox currently provides DVR service include Gainesville, Florida; Fairfax, Virginia; San Diego, California; Las Vegas, Nevada; and Cleveland, Ohio. *Id.*

¹⁷⁸ Cox Communications Inc., *Cox Communications' Digital Video Recorder Service Soon Available in More Than 95 Percent of Markets* (press release), July 27, 2004.

¹⁷⁹ Cox Communications Inc., *Cox Digital Video Recorder Service Enhancements Bring Customers a Superior Viewing Experience* (press release), Sept. 8, 2004.

¹⁸⁰ The dual tuner software is available in markets where Cox uses Motorola DVRs. Cox's current Motorola DVR markets include Kansas; Orange County, California; Middle America Cox (Arkansas, Kansas, Louisiana, and East Texas); Omaha, Nebraska; Roanoke, Virginia; New England; Baton Rouge, Louisiana; Hampton Roads, Virginia; Middle Georgia; New Orleans, Louisiana; and Tulsa, Oklahoma. *Id.*

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ See Comcast Corp., at http://www.comcast.com/Support/Corp1/FAQ/FaqDetail_1824.html (visited Jan. 14, 2005).

¹⁸⁴ *Id.*

¹⁸⁵ NCTA Comments at 35.

areas. In late 2003, Charter announced an agreement with Scientific-Atlanta Inc. to purchase digital set-top boxes for the initial rollout of DVR service in the Los Angeles area, the first of Charter's DVR deployments.¹⁸⁶ In the spring of 2004, Charter announced the commercial launch of a dual-tuner DVR service using a Motorola digital set-top box in the Rochester, Minnesota market.¹⁸⁷ Insight offers DVR service in all its systems, and Cablevision, Mediacom, Bright House, and Adelphia have announced plans for DVR deployment in 2004.¹⁸⁸

43. *High-Definition Television (HDTV)*. Cable operators are deploying HDTV nationwide. Cable companies initiated HDTV service in early 2003, and by the end of that year it was available to approximately 37 million cable subscribers.¹⁸⁹ At the end of June 2004, HDTV service was available in 155 markets, including 99 of the top 100 markets, making it the fastest rollout of any service launched by the cable industry.¹⁹⁰ By late September 2004, HDTV over cable was available to subscribers in 177 markets, including all of the top 100 markets, and 90 million television households were passed by a cable system offering HDTV programming.¹⁹¹ HDTV is part of the digital video service, requires an HD set-top box, and typically includes a mix of broadcast, basic cable, and premium nonbroadcast networks.¹⁹² Fifteen nonbroadcast networks offer HDTV programming.¹⁹³ These include HBO, Showtime, Cinemax, The Movie Channel, Starz!, and iN Demand. In addition to its HD Theater, Discovery plans to produce Atlas HD, a series of 30 two-hour, HDTV documentary specials on countries around the world.¹⁹⁴ HDNet produces sports, news, and entertainment 24 hours a day. MSG Network, Comcast SportsNet, Fox Sports Net NY, and ESPN also produce HDTV programming. In addition to the nonbroadcast networks, cable operators are carrying the digital signals of 454 broadcast stations.¹⁹⁵ Cox has agreements with the Public Broadcasting Service and the Association of Public Television Stations to carry digital signals, including the HDTV programming, of 70 PBS stations.¹⁹⁶ Public broadcasters have similar company-wide agreements with Time Warner and Insight, and market-specific agreements with Comcast, Adelphia, Cablevision, and Bright House.¹⁹⁷

44. Comcast offers HDTV in 54 markets, including all of the top 100 designated market areas (DMAs) served by Comcast, as well as smaller markets like Eugene, Oregon; Salisbury, Maryland; and

¹⁸⁶ Charter Communications Inc., *Charter Communications Gives Video Control to California Customers* (press release), Dec. 19, 2003.

¹⁸⁷ Charter Communications Inc., *Charter Deploys Motorola's Broadband Media Center with Moxi Service* (press release), Apr. 26, 2004.

¹⁸⁸ NCTA Comments at 36.

¹⁸⁹ *Id.* at 31. The high-definition tier of programming requires subscription to the digital service and a high-definition set-top box. To obtain the full visual effect of HDTV, a cable subscriber also needs an HDTV set.

¹⁹⁰ *Id.*

¹⁹¹ NCTA, *Consumers in 177 Markets Across the U.S. – Including all of the Top 100 – Can Now Receive HDTV Over Cable* (press release), Sept. 27, 2004.

¹⁹² NCTA Comments at 31.

¹⁹³ *Id.* at 32.

¹⁹⁴ *Id.*

¹⁹⁵ NCTA, *Cable's HDTV Deployment* at <http://www.ncta.com/images/HDTVkit-Deploy-final2.pdf> (visited Nov. 4, 2004). Data as of September 15, 2004 include some digital signals that may be DTV and not HDTV. See also NCTA Comments at 32.

¹⁹⁶ NCTA Comments at 31.

¹⁹⁷ *Id.* at 32.

Panama City, Florida.¹⁹⁸ At the end of June 2004, Comcast had approximately 600,000 subscribers to its HDTV service and offered HDTV service to more than 91 percent of its basic cable subscribers, up from 84 percent at the end of 2003.¹⁹⁹ Comcast charges a one-time fee for HDTV service and an additional \$5 monthly charge for the HDTV set-top box.²⁰⁰ Comcast offers as many as 14 program services in HDTV, including the major broadcast networks, PBS, ESPN, iNHD1, iNHD2, HBO, Showtime, Starz!, and Cinemax.²⁰¹ Comcast has also entered an agreement with Discovery Communications to offer Discovery HD Theater in selected markets.²⁰² In addition, Comcast offers Comcast SportsNet in HDTV in some markets and is working with independent programmers, such as New England Sports Network, to create HDTV programming.²⁰³ Most of Time Warner Cable's 31 divisions offer HDTV.²⁰⁴ To access Time Warner Cable's HDTV service, subscribers must subscribe to the digital service and have an HDTV television and an HDTV set-top box.²⁰⁵ All of Time Warner's HDTV subscribers receive, at no additional charge, HDTV programming from networks that have standard definition counterparts, including ABC, NBC, CBS, FOX, PBS, WB, UPN, TNT, Discovery HD Theater, HBO, and Showtime.²⁰⁶ For an additional \$6.50 per month, Time Warner offers a second HDTV tier that includes ESPN HD, HDNet, HDNet Movies, iNHD1, and iNHD2.²⁰⁷ In San Diego, 14 percent of Time Warner's digital cable subscribers also subscribe to the HDTV service, the highest HDTV penetration of any Time Warner cable division.²⁰⁸ Cablevision offers 15 HDTV channels to more than 70,000 HDTV subscribers.²⁰⁹ For iO subscribers with HDTV television sets, Cablevision offers HD set-top boxes at no additional charge over the standard box rental fee.²¹⁰ Currently, there is no additional charge for the HDTV programming provided the subscriber subscribes to a programming package that offers the standard definition version of each channel.²¹¹ Cablevision's HDTV subscribers may view in high-definition CBS, PBS, FOX, NBC, MSG Network, Fox Sports Net New York, Bravo, HBO, Showtime, Cinemax, Starz!, The Movie Channel, iN Demand's iNHD, and the industry's first HDTV VOD offering, featuring more than 20 new release movies and programs originally seen in IMAX theaters.²¹² Charter offers HDTV service in over 33 of its markets.²¹³ Charter offers the following HDTV channels: ABC, CBS, NBC, FOX, Discovery,

¹⁹⁸ Comcast Comments at 28.

¹⁹⁹ *Id.*; Comcast Corp., *Comcast Reports Second Quarter 2004 Results* (press release), July 28, 2004; Comcast Corp., *Comcast Full Year and Fourth Quarter Results Meet or Exceed All Operating and Financial Targets Setting Stage for Continued Growth in 2004* (press release), Feb. 11, 2004.

²⁰⁰ See Comcast Corp., at <http://www.comcast.com/Buyflow/default.aspx> (visited Jan. 10, 2005).

²⁰¹ Comcast Comments at 28.

²⁰² *Id.*

²⁰³ *Id.* at 29.

²⁰⁴ See, Time Warner Cable, at <http://www.timewarnercable.com/CustomerService/FAQ/TWCFaqs.aspx?faqID=30&MarketID=10&CatID=58> (visited Sept. 17, 2004).

²⁰⁵ Time Warner Inc., *Time Warner Cable Launches ESPN HD* (press release), Sept. 14, 2004.

²⁰⁶ *Id.*

²⁰⁷ *Id.*

²⁰⁸ Time Warner Inc., *Time Warner Cable San Diego Offers ESPN in High-definition* (press release), Sept. 13, 2004.

²⁰⁹ Cablevision Systems Corp., *Cablevision and ESPN Reach Agreement to Add ESPN HD to Cablevision's Comprehensive High-Definition Programming Slate* (press release), June 7, 2004.

²¹⁰ *Id.* A professional installation fee applies.

²¹¹ *Id.*

²¹² *Id.*

²¹³ See Charter Communications, Inc., http://www.charter.com/help/faqs/hdtv_faqs.aspx (visited Sept. 17, 2004).

ESPN, HDNet, HDNet Movies, HBO HD to HBO subscribers, and Showtime HD to Showtime subscribers.²¹⁴ Charter's HDTV set-top box costs \$3 more a month than its standard digital set-top box.²¹⁵

45. *High-Speed Internet Access Service.* In 2004, high-speed Internet access service is projected to generate approximately 15.4 percent of total cable industry revenue.²¹⁶ According to one analyst, cable's high-speed Internet service is currently available to over 98 million homes, and by year-end 2005, it will be available to more than 102 million homes.²¹⁷ NCTA maintains that the numbers indicate that the cable industry is close to completing the systems upgrades necessary to offer high-speed Internet service and other advanced services to every home passed by cable.²¹⁸

46. Cable provided high-speed Internet access service to 63.2 percent (16.4 million subscribers) of the total 26 million high-speed Internet access residential and small business subscribers, as of year-end 2003.²¹⁹ DSL accounted for 34.3 percent.²²⁰ Approximately 2.5 percent of high-speed Internet subscribers use other wireline and wireless technologies.²²¹ From June 2003 to June 2004, the number of cable modem subscribers grew from 13.7 million to 18.5 million.²²² Over the same period, the number of DSL subscribers increased from 6.4 million to 10.8 million.²²³

47. Comcast's high-speed Internet access service is available to 37.3 million homes, or 96.6 percent of homes passed by Comcast's systems.²²⁴ At year-end 2003, Comcast had 5.3 million subscribers to its high-speed Internet access service, representing a penetration rate²²⁵ of 15.2 percent.²²⁶ By the end of June 2004, the number of subscribers to Comcast's high-speed Internet access service had

²¹⁴ *Id.*

²¹⁵ *Id.*

²¹⁶ Cable Databook at 4-5. See Table 4, *supra*.

²¹⁷ NCTA Comments at 38.

²¹⁸ *Id.* at 39.

²¹⁹ FCC, *High-Speed Services for Internet Access: Status as of June 30, 2004* (WCB, rel. Dec. 22, 2004) (High-Speed Services Report) at Table 3. NCTA estimates that cable operators have 17.3 million subscribers of high-speed Internet service. NCTA Comments at 30.

²²⁰ High-Speed Services Report at Table 3.

²²¹ *Id.*

²²² High-Speed Services Report at Table 3; *2003 Report*, 19 FCC Rcd at 1642 ¶ 53. Kagan estimates that the number of cable modem subscribers grew from 13.8 million in June 2003 to 18.6 million in June 2004. Kagan World Media, *Cable TV Investor: Deals & Finance*, Aug. 18, 2004, at 3. See paras. 115, 206 *infra*.

²²³ High-Speed Services Report at Table 3; *2003 Report*, 19 FCC Rcd at 1642 ¶ 53. Kagan estimates that the number of DSL subscribers grew from 6.5 million in June 2003 to 9.8 million in June 2004. Kagan World Media, *Cable TV Investor: Deals & Finance*, Aug. 18, 2004, at 3.

²²⁴ Comcast Corp., *Comcast Reports Second Quarter 2004 Results* (press release), July 28, 2004.

²²⁵ Although there is no standard method for reporting penetration rates for advanced services, high-speed Internet service penetration rates are usually calculated by dividing the number of high-speed Internet subscribers by the number homes passed where high-speed Internet service is available. This is the method often used when high-speed Internet services are not yet available to every home passed by a cable system. Cablevision, however, has completed its system upgrade and makes high-speed Internet service available to all homes passed by its cable systems. As such, Cablevision calculates its penetration rate for high-speed Internet service by dividing the number of high-speed Internet service subscribers by the number of homes passed by its cable system.

²²⁶ Comcast Corp., *Comcast Full Year and Fourth Quarter Results Meet or Exceed All Operating and Financial Targets Setting Stage for Continued Growth in 2004* (press release), Feb. 11, 2004.

grown to over 6 million, representing a penetration rate of 16.1 percent.²²⁷ Comcast reported that the average monthly revenue per high-speed Internet subscriber was \$43.52 in the second quarter of 2004.²²⁸ Cox ended 2003 with nearly 2 million high-speed Internet access subscribers.²²⁹ At the end of June 2004, the number of subscribers to Cox's high-speed Internet subscribers had grown to 2.2 million, representing a 21.7 percent penetration rate.²³⁰ Time Warner had 3.2 million high-speed Internet subscribers at year-end 2003, representing a penetration rate of 17 percent.²³¹ The number of Time Warner's high-speed Internet subscribers had grown to 3.5 million by the end of June 2004, representing a penetration rate of 19 percent.²³² Cablevision reported 1.1 million subscribers for its high-speed Internet and a penetration rate of 24 percent for year-end 2003.²³³ By the end of June 2004, Cablevision had 1.2 million high-speed Internet subscribers and the highest penetration rate (26.7 percent) in the cable industry for this service.²³⁴ Charter had nearly 1.6 million high-speed Internet subscribers at the end of 2003, representing a penetration rate of 15 percent.²³⁵ The number of subscribers to Charter's high-speed Internet service had grown to more than 1.7 million, a penetration rate of 16 percent, at the end of June 2004.²³⁶

48. Cable operators are increasing the speed of their high-speed Internet services,²³⁷ and are beginning to offer high-speed Internet tiers, increased storage capacity, multiple e-mail accounts, and home networking for multiple devices.²³⁸ Comcast offers two high-speed options: 4 Mbps for \$52.95 per month and 3 Mbps for \$42.95 per month.²³⁹ Subscribers select their speed then choose between standard service (one connection) and Comcast Home Networking (up to five devices), at no additional monthly service cost.²⁴⁰ In addition, Comcast offers subscribers up to seven e-mail accounts with storage capacity of 250 MB for each account.²⁴¹ In most of its markets, Cox offers three high-speed Internet access tiers: a value package providing 256 Kbps downstream and upstream for \$24.95 per month; a preferred package providing 4 Mbps downstream and 512 Kbps upstream for \$39.95 per month; and a premier package

²²⁷ Comcast Corp., *Comcast Reports Second Quarter 2004 Results* (press release), July 28, 2004.

²²⁸ *Id.*

²²⁹ Cox Communications Inc., *Cox Communications Announces Fourth Quarter and Full-Year Financial Results for 2003* (press release), Feb. 12, 2004.

²³⁰ Cox Communications Inc., *Cox Communications Announces Second Quarter and Year-to-Date Financial Results for 2004* (press release), July 29, 2004.

²³¹ Time Warner Inc., *Time Warner Reports Results for 2003 Full Year and Fourth Quarter* (press release), Jan. 28, 2004.

²³² Time Warner Inc., *Time Warner Inc. Reports Second Quarter 2004 Results* (press release), July 28, 2004.

²³³ Cablevision Systems Corp., *Cablevision Systems Corporation Reports Fourth Quarter and Full Year 2003 Results* (press release), Mar. 2, 2004.

²³⁴ Cablevision Systems Corp., *Cablevision Systems Corporation Reports Second Quarter 2004 Results* (press release), Aug. 9, 2004.

²³⁵ Charter Communications Inc., *Charter Reports Fourth Quarter and Year 2003 Financial and Operating Results* (press release), Feb. 19, 2004.

²³⁶ Charter Communications Inc., *Charter Reports Second Quarter 2004 Financial and Operating Results* (press release), Aug. 9, 2004.

²³⁷ See NCTA Comments at 40-41.

²³⁸ See paras. 195, 210 *infra*.

²³⁹ Comcast Corp., *Comcast Adds New 4Mbps ('4Meg') Speed Option to High-Speed Internet Service Offering* (press release), July 27, 2004.

²⁴⁰ *Id.*

²⁴¹ *Id.*

providing 5 Mbps downstream and 768 Kbps for \$54.95 per month.²⁴² Time Warner's core Road Runner package provides 3 Mbps downstream and 384 Kbps upstream for \$44.95 per month.²⁴³ Time Warner has announced plans to introduce a Road Runner Premium high-speed Internet package providing 6 Mbps downstream and 512 Kbps upstream for between \$64.95 and \$84.95 per month, depending on the package or bundle of other services the subscriber takes from Time Warner Cable.²⁴⁴ Cablevision's Optimum Online high-speed Internet service provides 3.5 Mbps downstream and 1 Mbps upstream for \$44.95 per month and can be purchased through the television set using only the remote control and on-screen prompts.²⁴⁵ In more than 85 percent of Charter's markets, high-speed Internet subscribers receive 3 Mbps downstream and 256 Kbps upstream for \$39.99 per month.²⁴⁶

49. Most cable operators provide high-speed Internet service with one proprietary ISP specifically created and owned by the cable operator.²⁴⁷ For example, Cablevision offers high-speed Internet service under the brand Optimum Online, Charter offers the service under the Charter High-Speed brand, and Cox offers the service under the Cox High Speed Internet brand. Some cable operators, however, permit their high-speed Internet service to be used with non-affiliated ISPs. For example, Time Warner Cable offers its subscribers multiple ISPs including its own Road Runner Internet access service, AOL for Broadband, Earthlink, Big Net and other regional ISPs.²⁴⁸

50. **Telephony Offered by Cable Operators.** Although some cable companies have been providing traditional circuit-switched telephony for years, the cable industry is now using digital technology, the bandwidth provided by their fiber/coaxial network, and the Internet to provide voice-over-Internet protocol (VoIP) services.²⁴⁹ This is a new product that is not yet widely available, but cable

²⁴² Cox Communications Inc., *Overnight, Cox Turns up the Speed on High-Speed Internet Service* (press release), Aug. 10, 2004. The service is available to nearly two million Cox high-speed Internet subscribers. The service is not yet available in Cox's Las Vegas, Nevada; Gainesville, Florida; and Middle America markets. *Id.*

²⁴³ Time Warner Cable, *Time Warner Cable Rolls Out Even Faster Version of Road Runner as New Option for Gamers and Other Intensive Bandwidth Users* (press release), July 26, 2004.

²⁴⁴ Time Warner announced that most of Time Warner Cable's 31 operating divisions would begin offering the Premium Road Runner high-speed Internet service in August 2004. *Id.*

²⁴⁵ Cablevision Systems Corp., *Cablevision Launches Groundbreaking Sales Channel for Optimum Online* (press release), June 17, 2004; and Cablevision Systems Corp., http://www.cablevision.com/index.jhtml?pageType=ool_product (visited Sept. 21, 2004).

²⁴⁶ Charter Communications Inc., *Charter Increases Internet Access Download Speed by 50 Percent* (press release), Apr. 6, 2004.

²⁴⁷ 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 ¶ 7. See *AT&T v. City of Portland*, 216 F.3d 871 (9th Cir. 2000). See also *Brand X Internet Services v. FCC*, 345 F.3d 1120 (9th Cir. 2003) [No. 02-70518, Oct. 6, 2003], cert. granted, *F.C.C. v. Brand X Internet Services*, 125 S. Ct. 655 (mem), 73 USLW 3146, 73 USLW 3331, 73 USLW 334 (U.S. Dec. 3, 2004) (NO. 04-281).

²⁴⁸ See Time Warner Cable, at <http://www.timewarnercable.com/corporate/aboutus/> (visited Sept. 23, 2004).

²⁴⁹ 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

(continued...)

companies and analysts consider VoIP to be a major source of revenue in the years ahead.²⁵⁰ Although telephone companies are subject to a patchwork of state regulations, the Commission recently decided that a type of VoIP service offered by Vonage Holding Corporation, called DigitalVoice, is not subject to traditional state public utility regulation.²⁵¹ The Commission also stated that other types of IP-enabled services, such as those offered by cable companies, that have basic characteristics similar to DigitalVoice would not be subject to traditional state public utility regulation.²⁵² One of the unsettled issues is whether VoIP 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. At the end of 2003, there were 2.8 million subscribers to cable telephone service, with 2.7 million subscribers being served by circuit-switched service.²⁵³ At the end of 2004, Kagan projects there will be 3.5 million subscribers to cable telephone service, with 3.1 million subscribers being served by circuit-switched service and 400,000 being served by VoIP service.²⁵⁴

51. In late 2003, Time Warner announced partnerships with MCI and Sprint for the nationwide deployment of Digital Phone, Time Warner Cable's residential VoIP service.²⁵⁵ Time Warner's Digital Phone subscribers can connect to existing telephone jacks in the home, keep their existing telephone numbers, and retain their directory listings.²⁵⁶ Digital Phone's standard features include 411 directory assistance, 611 service calls, Enhanced 911 service, operators assisted calls, call waiting, caller ID and voice mail.²⁵⁷ The service includes unlimited local, in-state and domestic long distance calling starting at \$39.95 per month.²⁵⁸ Time Warner launched Digital Phone in February 2003 in Portland, Maine. Currently, Time Warner offers Digital Phone in 20 markets nationwide and plans to offer the service in all of its markets by the end of 2004.²⁵⁹ Time Warner's digital phone service does not include back-up power and will not function during a power outage.²⁶⁰ Although Cox has more than one million

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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.

²⁵⁰ For example, Dallas Clement of Cox Communications says that cable industry VoIP revenue will exceed \$1 billion by 2006 and grow to \$8 billion by 2010. Tania Pancayk-Collins, *NAMIC Notebook*, COMM. DAILY, Sept. 21, 2004, at 6. In addition, Merrill Lynch estimates that the cable industry's share of all phone lines will grow from 1.9 percent in 2003 to 12.6 percent in 2008 with all of the growth coming from VoIP. Louis Chunovic, *Dialing for Dollars*, BROADCASTING & CABLE, Aug. 30, 2004, at 28.

²⁵¹ *Vonage Holdings Corporation Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission*, WC Docket No. 03-211, FCC 04-267 ¶ 1 (rel. Nov. 12, 2004) (*Vonage Order*).

²⁵² *Vonage Order*, FCC 04-267, at ¶ 46.

²⁵³ Kagan World Media, *Cable TV Investor: Deals & Finance*, July 29, 2004, at 8-9.

²⁵⁴ *Id.*

²⁵⁵ Time Warner Cable, *Time Warner Cable Partners with MCI and Sprint for Nationwide Rollout of Digital Phone* (press release), Dec. 8, 2003.

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ See Time Warner Cable, <http://www.timewarnercable.com/corporate/products/digitalphone/landingpagephone.html> (visited Sept. 24, 2004).

²⁵⁹ Kathryn Balint, *Time Warner Joins Phone Fray*, SIGNONSANDIEGO.COM, Sept. 23, 2004, at <http://www.signonsandiego.com/news/business/20040923-9999-1b23phone.html> (visited Sept. 24, 2004).

²⁶⁰ See Time Warner Cable <http://www.twcnc.com/dp/faq.cfm#Can%20I%20call%20911%20using%20Digital%20Phone%20Service> (visited Oct. 25, 2004).

residential telephone subscribers in 13 markets,²⁶¹ Cox has been using, and plans to continue to use, circuit-switched technology for its service.²⁶² In late 2003, however, Cox used VoIP technology to provide telephony service in Roanoke, Virginia, and Cox is preparing to launch additional VoIP markets in 2004.²⁶³ Cox provides back-up power so that its digital phone service continues to work during a power outage.²⁶⁴ Cablevision Optimum Voice service offers unlimited local, regional, and long-distance calling within the United States and Canada for \$34.95 a month.²⁶⁵ The service includes: voicemail, call waiting, caller ID, caller ID blocking, call return, three-way calling, call forwarding, 911 service, and direct-dial international calling.²⁶⁶ Optimum Voice has 115,000 subscribers and is available to nearly 4.4 million homes. Optimum Voice calls are carried over Cablevision's own network, not the public Internet, and voice packets are prioritized.²⁶⁷ Cablevision does not provide back-up power for its VoIP system, so the service will not function during a power outage.²⁶⁸ Charter offers VoIP service to 31,000 subscribers in Madison and Wausau, Wisconsin, and St. Louis, Missouri.²⁶⁹ Charter plans to make its telephone service available to one million of its cable subscribers by the end of 2004.²⁷⁰ Charter recently announced agreements with Level 3 Communications, Sprint Communications, and Accenture which will enable the company to increase VoIP deployment in each of its markets in 2005.²⁷¹ Charter's VoIP service provides local and long-distance service within the United States and Canada and costs \$39.95 per month.²⁷² Charter plans to provide back-up power for its VoIP service.²⁷³ In 2004, Comcast's VoIP service will be tested in Philadelphia, Pennsylvania; Indianapolis, Indiana; and Springfield, Massachusetts; half its infrastructure will be VoIP-ready by the end of 2004; and 95 percent of its infrastructure will be VoIP-

²⁶¹ Markets include: Phoenix and Tucson, Arizona; Orange County and San Diego, California; Wichita, Kansas; Omaha, Nebraska; Meriden, Connecticut; Rhode Island (statewide); New Orleans, Louisiana; Oklahoma City, Oklahoma; and Hampton Roads, Roanoke and Northern Virginia, Virginia. Cox Communications Inc., *Cox Communications Brings Digital Telephone Service to Northern Virginia* (press release), April 30, 2004.

²⁶² Cox Communications Inc., *Cox Communications VoIP Whitepaper: Voice Over Internet Protocol: Ready for Prime Time*, May 2004, at 3.

²⁶³ *Id.* at 4.

²⁶⁴ See Jeff Baumgartner, *Dialing Out, Powering Up*, CED, July 2004, at <http://www.cedmagazine.com/ced/2004/0704/07f.htm> (visited Oct. 25, 2004).

²⁶⁵ Cablevision Systems Corp., *Direct-Dial International Calling Now Available With Cablevision's Optimum Voice* (press release), Sept. 13, 2004.

²⁶⁶ *Id.*

²⁶⁷ *Id.*

²⁶⁸ David Pogue, *When Is An Internet Phone Company Not An Internet Phone Company? When It's A Cable Company*, NEW YORK TIMES, April 8, 2004. See Cablevision Systems Corp., http://www.optimumvoice.com/index.jhtml?pageType=ny_times_04082004 (visited Oct. 25, 2004).

²⁶⁹ Jerri Stroud, *Charter's Phone Service is on Fast Track*, STLTODAY, Sept. 1, 2004, at <http://www.stltoday.com/stltoday/business/stories.nsf/Business/story/D0284558FD9B775386256F020005CC49?OpenDocument&Headline=MORNING+BRIEFING> (visited Sept. 24, 2004).

²⁷⁰ *Id.*

²⁷¹ Charter Communications Inc., *Charter Taps Three Telephony Partners; Level 3 Sprint and Accenture to Enhance, Expedite Charter Telephone* (press release), Aug. 30, 2004.

²⁷² Dan Hinkel, *Charter Offers Internet Telephone Capability*, GAZETTEEXTRA, Sept. 15, 2004, at <http://www.gazetteextra.com/charter091504.asp> (visited Sept. 24, 2004).

²⁷³ Alan Breznick, *More Major MSOs Unveil VoIP Rollout Plans*, CABLE DATACOM NEWS, Mar. 2004, at <http://www.cabledatacomnews.com/sitesearch/results.php?q=Charter+Communications+Power+Back+up> (visited Oct. 25, 2004).

ready by the end of 2005.²⁷⁴ Comcast plans to offer VoIP service to more than 40 million households by 2006.²⁷⁵ Comcast's network has a built-in emergency back-up power that will provide telephone service for up to 10 hours.²⁷⁶

52. Mid-sized and Smaller Cable Operators. In addition to reporting on the advanced services provided by the largest cable companies, this year we examined six mid-sized and smaller cable operators to identify the advanced services they provide.²⁷⁷ All provide high-speed Internet service. All provide digital video service but not all offer HDTV, VOD, and DVR service. Some provide telephone service, but not VoIP. Bresnan Communications serves over 300,000 subscribers in Colorado, Montana, Wyoming, and Utah.²⁷⁸ Bresnan Communications offers a full range of advanced services that include digital video service, VOD, HDTV, DVR, high-speed Internet service, and circuit-switched telephone service.²⁷⁹ Service Electric Cable TV & Communications serves approximately 290,000 subscribers in Pennsylvania and New Jersey.²⁸⁰ Service Electric offers digital video service, HDTV, high-speed Internet, and circuit-switched telephone service.²⁸¹ Service Electric does not offer VOD and DVR service. Susquehanna Communications serves over 230,000 subscribers in Pennsylvania, New York, Illinois, Indiana, Maine, and Mississippi.²⁸² Susquehanna Communications offers digital video service, HDTV, and will soon offer VOD and DVR service.²⁸³ Susquehanna Communications also offers high-speed Internet service and will soon offer digital telephone service.²⁸⁴ Buckeye CableSystem serves approximately 149,000 subscribers in Ohio, Michigan, and New York.²⁸⁵ Buckeye CableSystem offers digital video service, HDTV, VOD, and high-speed Internet service.²⁸⁶ Buckeye CableSystem does not offer DVR or telephone service. US Cable Group serves 145,000 subscribers in Minnesota, Wisconsin, South Carolina, Georgia, Florida, Missouri, Texas, New Mexico, Colorado, and New Jersey.²⁸⁷ US Cable Group offers digital video service, and high-speed Internet service.²⁸⁸ US Cable Group does not offer HDTV, VOD, DVR, or residential telephone service. Sunflower Broadband operates cable systems in

²⁷⁴ Comcast Corp., *Presentation to UBS 32nd Annual Media Conference*, Dec. 9, 2004, at 20. See also Wesley Brown, *Internet Phone Service for Every Home Not Far Off*, ARKANSAS NEWS BUREAU, June 27, 2004, at http://www.vonage.com/corporate/press_news.php?PR=2004_06_27_1 (visited Sept. 24, 2004).

²⁷⁵ *Id.*

²⁷⁶ See Comcast Corp., http://www.comcast.com/Support/Corp1/FAQ/FaqDetail_1719.html (visited Oct. 25, 2004).

²⁷⁷ The six mid-sized and smaller cable companies include: Bresnan Communications, Service Electric Cable TV & Communications, Susquehanna Communications, Buckeye CableSystem, US Cable Group, and Sunflower Broadband. See also *Availability of Advanced Telecommunications Capability in the United States (Fourth 706 Report)*, 19 FCC Rcd 20540, 20570 (2004).

²⁷⁸ See Bresnan Communications, at <http://www.bresnan.com/unst/about> (visited Oct. 28, 2004).

²⁷⁹ See Bresnan Communications, at <http://www.bresnan.com/unst/products/offers> (visited Oct. 28, 2004).

²⁸⁰ See Service Electric Cable TV & Communications, at <http://www.sectv.com/comp.shtml> (visited Oct. 27, 2004).

²⁸¹ See Service Electric Cable TV & Communications, at <http://www.sectv.com/prod.shtml> (visited Oct. 27, 2004).

²⁸² See Susquehanna Communications, at <http://www.suscom.com/about/pfaltzgraff.php> (visited Oct. 28, 2004).

²⁸³ *Id.*

²⁸⁴ *Id.*

²⁸⁵ NCTA, *Cable Operators*, Cable Developments 2004, at 28.

²⁸⁶ See Erie County Cablevision Inc., at http://www.buckeyecablesystem.com/erie_html/indexpages_html/ourcompany.html (visited Oct. 28, 2004).

²⁸⁷ See US Cable Group, at http://www.uscablegroup.com/operating_companies.htm (visited Oct. 28, 2004).

²⁸⁸ See US Cable Group, at <http://www.uscable.com> (visited Oct. 28, 2004).

Kansas and offers digital video service, HDTV, high-speed Internet service, and circuit-switched telephone service.²⁸⁹ Sunflower Broadband does not offer VOD and DVR service.

B. Direct-to-Home Satellite Services

1. Direct Broadcast Satellite

53. DBS operators provide service to most of the continental U.S., and they generally provide service to Alaska and Hawaii.²⁹⁰ While companies are not required to charge a direct fee for their service, in the U.S. all the current DBS companies provide a subscription service that is presently limited to video and audio programming although under the Commission's rules DBS providers are also allowed to provide other "nonconforming" services as well. DBS service is provided via satellite to small parabolic "dish" antennas located at the individual residences of consumers or at business or educational organizations.²⁹¹ Currently, four operators hold licenses to provide DBS service: EchoStar (marketed as the DISH Network), DIRECTV, Dominion Video Satellite, Inc. (marketed as Sky Angel),²⁹² and Cablevision's Rainbow DBS Company LLC (marketed as VOOM).²⁹³ On December 19, 2003, the Commission approved the joint application of General Motors Corporation, Hughes Electronics Corporation (Hughes) and The News Corporation (News Corp) to transfer control of various Commission licenses and authorizations, including its DBS authorizations held by Hughes, to News Corp.²⁹⁴

54. **Subscribership.** As of June 30, 2004, approximately 23.16 million U.S. households subscribed to DBS services.²⁹⁵ This represents an increase of 13 percent over the 20.4 million DBS

²⁸⁹ See Sunflower Broadband, at <http://www.sunflowerbroadband.com> (visited Oct. 28, 2004).

²⁹⁰ Under the geographic service rules, DBS operators must provide service to Alaska and Hawaii unless they can demonstrate that such service is technically infeasible. This requirement does not apply to satellites operating at 61.5° W.L. See 47 C.F.R. § 25.148(c). See also State of Hawaii, Petition for Administrative Sanctions of the State of Hawaii, MB Docket No. 03-82 (filed Feb. 6, 2003); MICROCOM, Request for Declaratory Ruling on DBS Service to Hawaii from 101 Degrees W.L., MB Docket No. 03-82 (filed Mar. 19, 2003).

²⁹¹ In our rules we define the Direct Broadcast Satellite Service as "A radiocommunication service in which signals transmitted or retransmitted by space stations, using frequencies specified in § 25.202(a)(7), are intended for direct reception by the general public. For the purposes of this definition, the term direct reception shall encompass both individual reception and community reception." 47 C.F.R. 25.201.

²⁹² 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.*, 14 FCC Rcd 8182 (1999).

²⁹³ Cablevision recently cancelled its planned spin off of its Rainbow Media Enterprises, which includes VOOM and several programming networks. See Peter Grant, *Cablevision Won't Spin Off Voom*, WALL STREET JOURNAL, Dec. 22, 2004, at B10.

²⁹⁴ See *General Motors Corporation and Hughes Electronics Corporation, Transferors, and The News Corporation Limited, Transferee, For Authority to Transfer Control (News Corp Order)*, 19 FCC Rcd 473 (2004), *recon. pending*. News Corp owns the Fox Television Network; 35 broadcast television stations; news, sports and general entertainment cable networks; movie and television studios; print publications; and conditional access system provider NDS. For a complete listing of News Corps holdings, see News Corp., at <http://www.newscorp.com/index2.html> (visited Jan. 14, 2005). In addition, Liberty Media Corporation holds a sizable interest in News Corp. See Geraldine Fabrikant, *Liberty Media Accelerates Swap of News Corp. Shares*, NEW YORK TIMES, Dec. 21, 2004, at C4. Moreover, News Corp. has announced plans to launch a several new channels in coming years through DIRECTV. See Joe Flint, *News Corp. Plans Reality Channel Aided by DirecTV*, WALL STREET JOURNAL, July 14, 2004, at B2.

²⁹⁵ SBCA Comments at 5.

subscribers we reported last year.²⁹⁶ DBS comprises approximately 25 percent of all MVPD subscribers.²⁹⁷ Several reasons account for DBS' continued subscriber growth, including offers of free set-top box equipment, increased availability of local broadcast stations, and an increase in niche programming, such as EchoStar's Armenian, Urdu, Tagalog, and Portuguese-language channels, and DIRECTV's CricketTicket sports network, and Hindi, Vietnamese, and Tamil-language channels.²⁹⁸ One analyst states that changes in the market share of total new subscribers between cable and DBS indicates a change in consumer preference between cable and DBS service, but one primarily confined to consumers in the midst of switching their physical residence.²⁹⁹ DBS operators continue to rank high in customer satisfaction surveys. In its annual ranking of cable and satellite providers, J.D. Power and Associates found consumers ranked EchoStar first and DIRECTV second among the largest 13 MVPDs.³⁰⁰

55. DIRECTV retains its position as the leading DBS provider and second largest MVPD with 13.04 million subscribers as of June 2004, an increase of 12.4 percent from the 11.6 million subscribers as of June 2003.³⁰¹ EchoStar is the second largest DBS operator and fourth largest MVPD, with 10.12 million subscribers as of June 30, 2004, an increase of 15 percent over the 8.8 million subscribers as of June 2003.³⁰² Last year we reported the entry of DBS provider VOOM in October 2003, and, as of June 30, 2004, VOOM reported that it had approximately 25,000 subscribers.³⁰³ Sky Angel continues to provide 20 channels of family-oriented programming, but does not publicly disclose its subscriber numbers on an annualized basis.³⁰⁴

²⁹⁶ See 2003 Report, 19 FCC Rcd at 1650 ¶ 65.

²⁹⁷ See Table B-1 *infra*.

²⁹⁸ See, e.g., Peter Grant, *Cable Trouble: Subscriber Growth Stalls as Satellite TV Soars*, WALL STREET JOURNAL, Aug. 4, 2004; David Lieberman, *Cable Companies' Subscriber Base Sinks, While Satellite Firms Soar*, USA TODAY, Aug. 11, 2004, at 3B; Douglas Shapiro and W. Joseph Fersedi, *What Changed in the Cable-DBS Dynamic in 2Q?*, Banc of America Securities, Aug. 27, 2004. In addition to free equipment and local-into-local service penetration, Shapiro posits that several changes in how DIRECTV conducts its business led to "astounding" gross subscriber additions for the provider. Specifically, DIRECTV moved away from selling its equipment in a retail environment to direct sales, with many retailers selling a certificate and then contacting DIRECTV directly to ship and install the system. *Id.* at 10. Shapiro also believes that DIRECTV's use of a new security stream for its programming, which has not yet been hacked, accounted for a "significant number" of DIRECTV's gross subscriber additions during the second quarter of 2004. *Id.* at 11.

²⁹⁹ Douglas Shapiro, *What Changed in the Cable-DBS Dynamic in 2Q?*, Banc of America Securities, Aug. 27, 2004, at 7. This analyst still perceives a high switching cost between the two platforms, but one that disappears when a consumer moves. *Id.* In addition, one study found that for basic cable services, consumers subscribe to DBS as a substitute for cable when facing large quality-adjusted cable price increases. When faced with small quality-adjusted cable price changes, switching costs deter customers from subscribing to DBS service. See Andrew S. Wise and Kiran Duwadi, *Competition Between Cable Television and Direct Broadcast Satellite – Its More Complicated Than You Think*, Media Bureau Staff Research Paper, International Bureau Working Paper, MB 2005-1, IB-3, January 2005.

³⁰⁰ See J.D. Power & Associates, *As Satellite TV Penetration Grows, Overall Customer Satisfaction Among Satellite Subscribers Continues to Top Cable* (press release), Aug. 18, 2004.

³⁰¹ DIRECTV Group, Inc., *SEC Quarterly Report Form 10-Q Pursuant to Section 13 of 15(d) of the Securities Act of 1934 for the Quarterly Period Ended June 30, 2004*, at 37.

³⁰² EchoStar Communications Corp., *SEC Quarterly Report Form 10-Q Pursuant to Section 13 of 15(d) of the Securities Act of 1934 for the Quarterly Period Ended June 30, 2004*, at 24.

³⁰³ Cablevision Systems Corp., *SEC Quarterly Report Form 10-Q Pursuant to Section 13 of 15(d) of the Securities Act of 1934 for the Quarterly Period Ended June 30, 2004*, at 23.

³⁰⁴ In previous reports we have estimated that Sky Angel serves approximately one million subscribers. See 2002 Report, 17 FCC Rcd at 26930 ¶ 59.

56. **Service and Equipment Pricing.** Both DIRECTV and EchoStar instituted price increases since our last report.³⁰⁵ EchoStar raised its prices on average \$2 per month.³⁰⁶ DIRECTV instituted its fourth price increase in 10 years, with prices for packages increasing between \$1 and \$3 per month.³⁰⁷ VOOM has experimented with varying pricing strategies for its service.³⁰⁸

57. Subscribers to DBS service need a satellite dish and a set-top box. Over the last few years, both major providers have offered heavily discounted or free equipment in exchange for annual service contracts. Recently DIRECTV and EchoStar have moved away from offering free equipment and are instead promoting equipment leasing on a monthly basis.³⁰⁹ In addition, DBS operators are offering multiple set-top boxes to new customers for free or at reduced cost in their standard promotions.³¹⁰ According to DIRECTV, lowering the price of its equipment is a critical factor in its ability to attract new

³⁰⁵ Todd Wallack, *Satellite TV Companies Raising Prices Again*, SFGATE.COM, Jan. 29, 2004; Michael McCarthy, *Satellite, Cable Operators Get Ready to Raise Rates*, USA TODAY, Feb. 10, 2004.

³⁰⁶ EchoStar made the following changes to its packages and pricing: changed the name of its America's Top 100 package to America's Top 120 package to reflect increased number of channels and raised its price from \$33.99 per month to \$34.99 per month; changed the name of its America's Top 150 to America's Top 180 to reflect increased number of channels and raised the price from \$42.99 to \$44.99; and raised the price of its America's Everything package from \$74.99 to \$77.99 per month. EchoStar changed the name of its America's Top 50 package to America's Top 60, but maintained the price at \$29.99 per month. See *EchoStar Slates Rate Increases on Some Packages*, SATELLITE BUSINESS NEWS, Jan. 14, 2004. See also EchoStar Communications Corp., *New DISH Network Package Eliminates Equipment Cost, Commitment; Low Price Includes Local Channels, Free Installation* (press release), Jan. 8, 2004. EchoStar's last price increase occurred in January 2003 when it raised its average subscriber's monthly fees four percent. See EchoStar Communications Corp., *DISH Network Increases Basic Rates by \$2; Average Customer to Receive Approximate Four Percent Increase* (press release), Jan. 9, 2003.

³⁰⁷ DIRECTV raised the price of its Total Choice package with 130 channels from \$33.99 to \$36.99 per month; Total Choice package with local stations increased from \$38.99 to \$39.99; Total Choice Plus package with 150 channels was raised from \$37.99 to \$39.99; Total Choice Plus with local stations increased from \$39.99 to \$42.99; Total Choice Premier package with 210 channels increased from \$85.99 to \$87.99; and Total Choice Premier with local stations increased from \$87.99 to \$90.99. *DIRECTV Slates Price Increases*, SATELLITE BUSINESS NEWS, Jan. 23, 2004.

³⁰⁸ See, e.g., *Voom Tries New Lease Offer, Lower Purchase Price*, SATELLITE BUSINESS NEWS, Feb. 16, 2004; *Voom Plans To Keep Current Promotion*, SATELLITE BUSINESS NEWS, May 28, 2004. Presently, VOOM has two programming packages. "VOOM Package" includes 21 HD channels available only from VOOM, 50-plus standard definition channels, 18 digital music channels, three non-exclusive HD channels, and a "SportsPack" with five sports-related channels for \$49.90 per month. The second package is "Va Va VOOM package, which includes everything offered in the standard VOOM Package plus HBO, Cinemax, Showtime Unlimited, and STARZ!, marketed as "PlusPacks" for \$89.90 per month. Subscribers to the VOOM Package have the option of buying individual "PlusPacks" for \$19.90 each per month. See *Voom Ups Price and Fees; Rainbow DBS Details Spin-Off Plans*, SATELLITE BUSINESS NEWS, Aug. 2, 2004; Rainbow DBS Company LLC, at <http://www.voom.com/index.jsp> (visited Jan. 14, 2005).

³⁰⁹ *EchoStar Increases Focus on Lease Program*, SATELLITE BUSINESS NEWS, July 12, 2004. For example, EchoStar ran a promotion in 2004 called Digital Home Advantage, which provided subscribers with free equipment and installation for up to four rooms. The customer paid a one-time \$49 activation fee, which was credited on the first monthly bill, and a fee of \$5 per month per receiver. The second offer, called Free-For-All, required purchase of the set-top box and satellite dish for \$199 for a two-room installation, or \$149 for a one-room installation, and then receiving 20 or 15 monthly credits of \$10 per month, respectively, for the total equipment cost.

³¹⁰ One analyst finds that the move from offering two receivers free to three or more per subscriber served to surmount cost-of-ownership concerns for consumers deciding between DBS and cable service. Douglas Shapiro, *What Changed in the Cable-DBS Dynamic in 2Q?*, Banc of America Securities, Aug. 27, 2004, at 9.

subscribers.³¹¹ DIRECTV and EchoStar continue to offer a wide range of equipment with advanced features, including dual-tuner DVR and HDTV.³¹² VOOM offers its equipment for sale and for lease.³¹³

58. *Availability of Local Broadcast Stations.* DBS providers continue to increase the number of markets where they deliver local broadcast television stations (local-into-local service).³¹⁴ As of December 2004, local-into-local service is offered by at least one DBS operator in 155 of 210 television markets (*i.e.*, designated market areas, or DMAs), which cover 95 percent of all U.S. television households. EchoStar leads DBS providers in offering to subscribers a package of local broadcast stations including commercial and non-commercial stations in 150 DMAs and Puerto Rico.³¹⁵ DIRECTV offers local-into-local service in 130 DMAs.³¹⁶ DIRECTV received Commission approval to relocate the DIRECTV 5 satellite to a Broadcasting Satellite Service orbital location assigned to Canada at 72.5° W.L.

³¹¹ DIRECTV Comments at 9.

³¹² See *e.g.*, The DIRECTV Group, Inc., *DIRECTV Selects TiVo For Next Generation Digital Satellite Receiver with DVR* (press release), Feb. 21, 2002.

³¹³ VOOM's "Base Offer" monthly leasing plan includes one receiver and dish installed for \$199 and a lease fee of \$9.50 per month, with the option of adding five additional receivers, each \$50 installed and \$14.50 per month per receiver. For subscribers signing an annual leasing contract, the cost is \$49 for one receiver, with an option to lease up to five additional receivers, for \$50 each installed and \$14.50 per month per receiver. For those buying VOOM equipment, the cost is \$499 for one receiver, and for up to five additional receivers, the cost for each is \$299 installed and \$5.00 per month. For those buying equipment and committing to an annual contract, the initial receiver cost is \$349, and additional receivers are \$299 installed and \$5.00 per month. In addition, subscribers taking the more expensive of VOOM's programming packages can receive a \$50 discount on the price and installation cost of each additional receiver. VOOM requires that its equipment be installed by a VOOM certified installer and has thus built the cost of installation into its equipment prices. See Rainbow DBS LLC, at http://www.voom.com/get_it/offers.jsp (visited Jan. 14, 2005).

³¹⁴ As required by the Satellite Home Viewer Improvement Act of 1999 (SHVIA), the Commission established rules to implement carriage of broadcast signals, retransmission consent, and program exclusivity with respect to satellite carriage of broadcast stations. SHVIA provides DBS carriers with the opportunity to carry local stations in a Designated Market Area (DMA) pursuant to a statutory copyright license similar to the one provided cable operators. If a DBS operator selects this option in a DMA, however, it must carry all the local stations in the DMA, effective January 1, 2002. See *Implementation of the Satellite Home Viewer Improvement Act 1999: Broadcast Signal Carriage Issues, Retransmission Consent Issues*, 16 FCC Rcd 1918 (2000); *Implementation of the Satellite Home Viewer Improvement Act of 1999: Broadcast Signal Carriage Issues*, 16 FCC Rcd 16544 (2001); *Implementation of the Satellite Home Viewer Improvement Act of 1999: Retransmission Consent Issues: Good Faith Negotiation and Exclusivity*, 16 FCC Rcd 15599 (2001).

³¹⁵ EchoStar Communications Corp., *DISH Network Satellite Television Brings Local Channels to Clarksburg-Weston, W.VA* (press release), Sept. 23, 2004. Historically, EchoStar required that consumers obtain a second satellite dish to receive all local stations in some markets. Presently, according to EchoStar, 62 of its local-into-local markets require the use of a "SuperDish" to receive all local channels and some additional programming, such as international channels. EchoStar's SuperDish allows subscribers to receive signals from three orbital locations. See EchoStar Communication Corp., at <http://www.dishnetwork.com/content/programming/locals/index.shtml> (visited Jan. 14, 2005).

³¹⁶ Letter from Susan Eid, The DIRECTV Group, to Marlene H. Dortch, Secretary, FCC, filed in MB Docket No. 03-124 (Dec. 22, 2004). As a condition of approval of News Corp.'s acquisition of DIRECTV, it was required to offer local broadcast television services in an additional 30 DMAs beyond what had previously been funded, projected, or planned. See *News Corp. Order*, 19 FCC Rcd at 617, 627 ¶¶ 334, 369. See also DIRECTV Group Inc., at http://www.directv.com/DTVAPP/see/LocalChannels_markets.dsp (visited Nov. 19, 2004).

and to provide local-into-local service in 24 markets in the U.S. from that location.³¹⁷ VOOM does not presently retransmit local-into-local programming.³¹⁸

59. *Spectrum Auctions.* In 2002, the Commission established the Multichannel Video Distribution and Data Service (MVDDS) in the 12.2-12.7 GHz band (12 GHz band), which is allocated to DBS on a primary basis.³¹⁹ MVDDS consists of 500 MHz of contiguous spectrum that is licensed across 214 service areas. MVDDS spectrum may be used to facilitate the delivery of new video and broadband communications services, such as local television programming and high-speed Internet access.³²⁰ The technical rules reflect a balance in which the Commission affords protection to the DBS service and the non-geostationary satellite orbit (NGSO) fixed-satellite service (FSS) while allowing the entrance of MVDDS.³²¹

60. In establishing MVDDS, the Commission concluded that another platform operator in the MVPD marketplace would provide significant public interest benefits through lower prices, improved service quality, increased innovation, and increased service to unserved or underserved rural areas.³²² In this connection, the Commission found that “open eligibility for in-region cable operators [would] pose[] a significant likelihood of substantial competitive harm” because “cable operators have a strong incentive to prevent entry by new MVPD providers.”³²³ Therefore, cable operators and entities holding attributable interests in cable operators must divest any attributable interest within ninety days of the grant of an MVDDS license whose geographic service area significantly overlaps the cable operator’s service area.³²⁴

61. On January 27, 2004, the Commission completed the auction of the 214 MVDDS licenses (Auction No. 53), raising (in net bids) a total of \$118,721,835. In this auction, ten winning bidders won a

³¹⁷ See *Application of DIRECTV Enterprises, LLC*, 19 FCC Rcd 15529 (2004). See also DIRECTV Reply Comments at 6. DIRECTV states that customers in these markets will access all local channels from 72.5° W.L. with the addition of a second 18-inch satellite dish, which DIRECTV states that it will provide and install free of charge to customers who agree to a one-year programming commitment. *Id.*

³¹⁸ All of VOOM’s equipment packages include a separate antenna capable of receiving over-the-air local digital broadcast channels. The antenna will not pick up analog local broadcast signals. See *Rainbow DBS Company LLC*, at http://www.voom.com/see_it/local.jsp (visited Jan. 14, 2005).

³¹⁹ *Amendment of Parts 2 and 25 of the Commission’s Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range*, 17 FCC Rcd 9614, 9680 (2002) (*MVDDS Second R&O*).

³²⁰ MVDDS licensees may use the 12.2–12.7 GHz band for any digital fixed nonbroadcast service (broadcast services are intended for reception of the general public and not on a subscribership basis) including one-way direct-to-home/office wireless service. See 47 C.F.R. § 101.1407 (permissible operations for MVDDS).

³²¹ See generally 47 C.F.R. Part 101, subpart P.

³²² *MVDDS Second R&O*, 17 FCC Rcd at 9680 ¶ 165.

³²³ *Id.*

³²⁴ 47 C.F.R. § 101.1412(a). “Cable operator” means a company that is franchised to provide cable service, as defined in 47 C.F.R. § 76.1000(e), in all or part of the MVDDS license area, *id.* § 101.1412(b). “Significant overlap” occurs when a cable operator’s subscribers in the MVDDS license area make up 35 percent or more of the households in that MVDDS license area which subscribe to one or more Multichannel Video Program Distributors (MVPDs), as defined in 47 C.F.R. § 76.1000(e). See 47 C.F.R. §§ 101.1412(c) and (e). The winning bidder for the MVDDS license of the New York service area (MVD001), *inter alia*, requested and received a 270-day extension of the 90-day divestiture deadline, see 47 C.F.R. § 101.1412(g)(4), of the Commission’s MVDDS/cable cross-ownership rule. See DTV Norwich, LLC, Application for Multichannel Video Distribution and Data Service License, MVD001-New York, Request for Waiver of Section 101.1412(g)(4) of the Commission’s Rules, Order, File No. 0001618606-MVD001, DA 04-3044 (*rel. Sept. 23, 2004*) (*DTV Norwich Waiver Order*).

total of 192 MVDDS licenses, which the Commission issued later in 2004.³²⁵ MVDDS licenses are issued for a ten-year term beginning on the date the initial authorization is granted.³²⁶ Licensees must provide "substantial service" within five years of the grant, which must be documented at license renewal time.³²⁷ As of the third quarter 2004, MVDDS equipment is still under development.

62. On July 19, 2004, the Commission completed the auction of three licenses to use the DBS service allocation in the 12.2-12.7 GHz band and Associated Feeder Links in the 17.3-17.8 GHz band (Auction No. 52), raising (in net bids) a total of \$12.2 million.³²⁸ The licenses are for unassigned channels at orbit locations of 175° W.L. (32 channels), 166° W.L. (32 channels), and 157° W.L. (29 channels). Cablevision's Rainbow DBS Company LLC paid \$3.2 million for the license at the 175° W.L. orbital location and \$3.2 million for the license at the 166° W.L. orbital location.³²⁹ EchoStar paid \$5.8 million for the license at the 157° W.L. orbital location.³³⁰

63. *Expanding Satellite Fleets and Video Capacity.* In May 2004, DIRECTV successfully launched DIRECTV 7S, a spot beam satellite designed to deliver local broadcast stations in their local markets.³³¹ In September 2004, DIRECTV announced it would spend \$1 billion to launch four new satellites capable of providing local-into-local service, national high-definition channels, and interactive programming.³³² DIRECTV announced that two (Ka-band) satellites, Spaceway 1 and Spaceway 2, already under construction and originally slated to support Spaceway's two-way satellite Internet service, are being converted to provide 500 local HD channels as well as broadband Internet service.³³³ DIRECTV expects to launch Spaceway 1 and 2 in early 2005, and anticipates that they will become

³²⁵ See *Wireless Telecommunications Bureau Grants Multichannel Video Distribution and Data Service Licenses*, Public Notice, DA 04-2331 (rel. July 27, 2004) (granting 154 licenses); *Wireless Telecommunications Bureau Grants Multichannel Video Distribution and Data Service Licenses to South.Com LLC*, DA 04-2547, *Public Notice*, (rel. Aug. 18, 2004) (granting 37 licenses); and *DTV Norwich Waiver Order* (granting license for MVD001). All of the grants are subject to conditions.

³²⁶ 47 C.F.R. § 101.1413(a).

³²⁷ 47 C.F.R. § 101.1413(b) and (c). The substantial service requirement is defined as a service that is sound, favorable, and substantially above a level of mediocre service which might minimally warrant renewal. At the end of five years into the license period and ten years into the license period, the Commission will consider factors such as: (1) whether the licensee's operations serve niche markets or focus on serving populations outside of areas serviced by other MVDDS licensees; (2) whether the licensee's operations serve populations with limited access to telecommunications; and (3) a demonstration of service to a significant portion of the population or land area of the licensed area.

³²⁸ See *Direct Broadcast Satellite Service Licenses Auction Closes*, *Public Notice*, DA 04-2158 (rel. July 19, 2004). The Commission recently decided that the eligibility for the fourth license originally slated for Auction No. 52, which authorizes use of the last two available channels at the eastern DBS orbit location – 61.5° W.L. – should be restricted. See *Auction of Direct Broadcast Satellite Licenses*, AUC-03-52, FCC 04-271 (rel. Dec. 3, 2004).

³²⁹ *Id.* at Attachment A.

³³⁰ *Id.*

³³¹ DIRECTV Group, Inc., *DIRECTV 7S Successfully Delivered on Sea Launch Vehicle* (press release), May 5, 2004. According to DIRECTV, the satellite is designed to deliver local programming to an additional 42 markets and to transmit local channels to 19 existing local-into-local markets. *Id.*

³³² Paul Bond, *DIRECTV Channels \$1 Billion HD Plan*, HOLLYWOOD REPORTER, Sept. 9, 2004; Andy Pasztor, *DIRECTV Spends on Satellites*, WALL STREET JOURNAL, Sept. 9, 2004.

³³³ DIRECTV Group, Inc., *DIRECTV Announces Plan to Launch Next Generation Satellites to Provide Dramatic Expansion of High-definition and Advanced Programming Services* (press release) (*DIRECTV Release*), Sept. 8, 2004. See also Andy Pasztor, *DIRECTV to Write Down Value of Internet-Via-Satellite Effort*, WALL STREET JOURNAL, Oct. 25, 2004.

operational by mid-2005. DIRECTV also plans to launch two more (Ka-band) satellites – DIRECTV 10 and DIRECTV 11 – in 2007, which will have the capacity to carry 1,000 local HD channels, up to 150 national HD channels, and a range of interactive and enhanced programming.³³⁴ Further video capacity enhancements will come from a gradual migration to advanced transmission codecs such as MPEG-4, higher order modulations such as 8PSK, and the use of new frequency bands.³³⁵ In June 2004, VOOM leased 16 Ku-band transponders aboard SES Americom's AMC-6 satellite, which VOOM refers to as "Rainbow 2".³³⁶ In addition, VOOM has contracted with Lockheed Martin for the construction of five Ka-band satellites to be operated at orbital locations of 62° W.L., 71° W.L., 77° W.L., 119° W.L. and 129° W.L.³³⁷

2. Home Satellite or Large Dish Service

64. The home satellite dish (HSD) or large dish segment of the satellite industry is the original satellite-to-home service offered to consumers, and involves the home reception of analog signals transmitted by satellites operating generally in the C-band frequency.³³⁸ As of June 30, 2004, there were 335,766 households receiving HSD service, a decrease of 33 percent from the 502,191 we reported as of June 2003 last year.³³⁹ Overall, HSD subscribership is decreasing by 12,000 to 20,000 subscribers per month.³⁴⁰ Nevertheless, several companies continue to sell programming in packages or on an a la carte

³³⁴ *DIRECTV Release*. See also Letter from William Wiltshire, Harris, Wiltshire & Grannis LLP, to Marlene H. Dortch, Secretary, FCC, Attachment (Digital Television Carriage Issues for DBS Operators) at 3, transmitted by letter from William Wiltshire to Marlene Dortch, Secretary, FCC (Oct. 12, 2004).

³³⁵ DIRECTV Ex Parte in CS Docket No. 98-120 (filed Oct. 8, 2004).

³³⁶ *SES Partners with VOOM*, Sky Report, June 10, 2004. VOOM expects to use the additional capacity to increase its channel capacity from a total of 130 channels to over 350 channels; high definition channels are expected to increase from 39 to more than 70, and standard definition channels from 90 to approximately 280. See *VOOM Plans Big Expansion*, Sky Report, Nov. 23, 2004. VOOM owns and operates a high power Ku-band satellite at 61.5° W.L. orbital location.

³³⁷ VOOM anticipates that in combination these satellites will provide spot beam coverage of the entire United States including Alaska and Hawaii, increasing its channel capacity to more than 5,000 high definition channels. The first of these satellites is expected to be launched in 2008. See *Rainbow Media Enterprises, VOOM Satellite Service to Dramatically Increase Channel Capacity* (press release), Nov. 22, 2004.

³³⁸ Satellites in the C-band frequency are primarily used to transmit programming to cable operators via C-band receiving dishes at the cable operator's central technical facility or "headend." To be "authorized" to receive one or more scrambled channels, an HSD owner must purchase an integrated receiver-decoder from an equipment dealer and then pay a monthly or annual subscription fee to a program packager. HSD systems are typically designed to receive programming from several different satellites at several different orbital locations. Most HSDs include motors that permit the receiving dishes to rotate and receive signals from these many satellites. Space considerations and zoning regulations restrict many viewers' ability to install the large antenna needed for HSD reception.

³³⁹ SBCA Comments at 6.

³⁴⁰ Frank Ahrens, *Channels A La Carte; Big Dish Customers, A Dying Breed, Choose What They Pay For*, WASHINGTON POST, Apr. 15, 2004, at E1; *C-Band Deauthorizations Slow Down*, SATELLITE BUSINESS NEWS, July 2, 2004; *C-Band Deauthorizations Drop Again*, SATELLITE BUSINESS NEWS, Aug. 4, 2004.

basis to home satellite dish owners.³⁴¹ In April 2004, EchoStar purchased Superstar/Netlink Group, LLC, one of the largest distributors of home satellite dish service and equipment.³⁴²

65. A digital home satellite dish solution has been introduced called 4DTV, which enables C-band customers to receive digital only satellite channels in addition to available analog programming.³⁴³ 4DTV allows customers to receive four types of programming: (1) free, unscrambled analog channels and so-called "wild feeds;" (2) VideoCipher II Plus subscription services; (3) free DigiCipher II services; and (4) subscription-based DigiCipher II channels. The 4DTV digital receiver retails for approximately \$800, but that price is often significantly discounted with the purchase of a programming package.

3. Satellite-Based Advanced Services

66. *Broadband Satellite Services.*³⁴⁴ DIRECTV offers high-speed Internet access to consumers via its two-way DIRECWAY service, for \$60 per month plus equipment costs.³⁴⁵ DIRECTV states that this service is not competitive with terrestrial high-speed Internet offerings because it costs almost twice as much as available DSL and cable modem service.³⁴⁶ EchoStar does not presently offer satellite-based broadband Internet service, and states that a successful rollout of satellite broadband nationwide will require spectrum resources in excess of what is now available to it.³⁴⁷ EchoStar states that it will likely offer a satellite-based broadband Internet access product, using its current spectrum capacity, targeting selected areas beginning in early 2005.³⁴⁸

67. DBS providers continued to align themselves with local exchange carriers (LECs) to offer DSL services.³⁴⁹ Both EchoStar and DIRECTV co-market their video services with these telephone

³⁴¹ See, e.g., National Programming Service, LLC, at <http://www.callnps.com/default.htm> (visited Jan. 14, 2005); Satellite Programming Service, Inc., at http://www.satelliteprogramming.com/new/cgi-bin/sps_home.asp (visited Jan. 14, 2005).

³⁴² GemStar-TV Guide International, Inc., *GemStar-TV Guide Completes Previously Announced Sale of Assets to EchoStar* (press release), Apr. 6, 2004. Superstar/Netlink previously maintained a joint venture with EchoStar under which Superstar customers were given the opportunity to switch to EchoStar's DBS service. See EchoStar Communications Corp., *EchoStar Announces Exclusive Marketing Alliance with Superstar/Netlink Group* (press release), Nov. 2, 1999. Under the terms of the agreement, in exchange for an upfront \$10 million fee, EchoStar was given the exclusive opportunity to convert approximately 1.4 million existing and inactive C-band customers to its DBS service.

³⁴³ 4DTV is Motorola's proprietary digital television receive-only communications satellite receiver box and uses the Motorola DigiCipher II, or DCII, standard of signal encryption and compression. 4DTV receivers are also capable of receiving analog satellite transmissions. See Motorola, Inc., at <http://www.4dtv.com/> (visited Jan. 14, 2005). VideoCipher is the conditional access system used by most C-band receivers to decode subscription based and premium satellite TV channels. DigiCipher II, or DCII, is Motorola's proprietary video distribution system that is used by most digital satellite channels.

³⁴⁴ See *Fourth 706 Report*, 19 FCC Rcd at 20562.

³⁴⁵ DIRECTV Comments at 23. DIRECTV is reported to be in talks to sell Hughes Network Systems, the parent company of DIRECWAY. See *DIRECTV Group, Apollo Near HNS Deal*, SATELLITE BUSINESS NEWS FAX UPDATE, Nov. 19, 2004.

³⁴⁶ *Id.*

³⁴⁷ EchoStar Comments at 16. See also SES Comments at i-ii.

³⁴⁸ EchoStar Comments at 18. EchoStar states that the location, pricing and packaging of this service have not been established.

³⁴⁹ See, e.g., Almar Latour and Peter Grant, *Bells Fight Cable With Satellite-TV Deals*, WALL STREET JOURNAL, Feb. 8, 2004. One analyst believes that LEC and DBS alliances are not temporary but are likely to be long-term as the LECs' ability to offer video services over DSL and fiber-to-the-home present technical and regulatory issues. See

(continued....)

providers' data and voice services, at a discount and usually on a single bill. EchoStar has agreements with SBC, Sprint, and CenturyTel, in addition to Internet service provider Earthlink.³⁵⁰ DIRECTV has agreements with SBC, Verizon, BellSouth, and Cincinnati Bell.³⁵¹

68. *Advanced Services.* DIRECTV continues to offer satellite receivers with TiVo's dual tuner DVR functionality.³⁵² In 2005, DIRECTV expects to introduce a second DVR system made by another News Corp. subsidiary, NDS Group.³⁵³ Of TiVo's 1.9 million total subscribers, approximately 1.11 million, or 60 percent, are DIRECTV customers.³⁵⁴ DIRECTV's DVR receivers range in price from \$79 to \$999. EchoStar has developed its own DVR system for its satellite receivers. It offers two models with "standard" DVR functionality, meaning VCR-like ability to control programming being viewed. It also offers what it terms "DISH Player DVRs," which, in addition to supporting typical VCR-like functionality, also support EchoStar's video-on-demand service.³⁵⁵ VOOOM does not presently offer set-top boxes with built-in DVR functionality but has announced its intention to offer a set-top box capable of recording both high-definition and standard definition channels.³⁵⁶

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Scott Cleland and Patrick Brogan, *Bells Need DBS Long-Term; Bells Face Big Regulatory Obstacles to Offer Video Over DSL/Fiber*, Precursor Group, Sept. 13, 2004.

³⁵⁰ EchoStar recently ended its relationship with Qwest, the incumbent local exchange operator serving 14 states in the upper Midwest United States. Qwest had marketing relationships with EchoStar and DIRECTV. QWEST has stated that it will continue to offer bundles that include DBS, data services, and local and long distance phone service. DIRECTV has indicated it will pursue a stronger relationship with Qwest in the near future. *See EchoStar Ends Qwest Expansion Plans*, SATELLITE BUSINESS NEWS, Sept. 20, 2004. With respect to SBC, in July 2003, as part of a strategic partnership, SBC invested \$500 million in EchoStar in exchange for options to purchase 3 percent of EchoStar. SBC has not yet exercised those options. *See SkyReport, SBC, EchoStar Devise New Relationship*, July 22, 2003; SBC Communications, Inc., *SBC Communications, EchoStar Forge Strategic Partnership, Will Offer "SBC DISH Network" Television Service* (press release), July 21, 2003. As of the end of June 2004, SBC reported that it had 121,000 DISH Network subscribers, with 100,000 added in the second quarter. Sky Report, *DISH Raises the Roof with Altitude Deal*, July 23, 2004. With respect to CenturyTel, the agreement covers CenturyTel's 22 state telephone and data services territory, and an investment by CenturyTel in EchoStar of \$25 million in convertible notes. *EchoStar Gets New Phone Partner*, SATELLITE BUSINESS NEWS, Aug. 27, 2004.

³⁵¹ DIRECTV Comments at 23. DIRECTV states that consumers purchasing these bundles are eligible for pricing discounts, the amount of which depends on the amount of telecommunications services purchased. *Id.* *See also* DIRECTV Group, Inc., *Cincinnati Bell and DIRECTV Form New Marketing Alliance to Offer Consumers a Bundled Suite of Services that Include Calling, Internet and Digital Television Entertainment* (press release), Nov. 8, 2004.

³⁵² DIRECTV and TiVo established a business relationship in October 2000, and in February 2002, DIRECTV chose TiVo to integrate its Series 2 DVR platform into DIRECTV's next generation receivers. *See* DIRECTV Group, Inc., *DIRECTV Selects TiVo For Next Generation Digital Satellite Receiver with DVR* (press release), Feb. 21, 2002. The present agreement runs through 2007.

³⁵³ Stuart Elliott and Ken Belson, *Stop Me If You've Seen This One Before*, NEW YORK TIMES, Aug. 9, 2004.

³⁵⁴ *TiVo Readies for NDS Competition*, SATELLITE BUSINESS NEWS, Aug. 27, 2004. TiVo states that in the second quarter of 2004, it added 288,000 new customers, of which 225,000, or 78 percent, were DIRECTV customers.

³⁵⁵ *See* EchoStar Communications Corp., at <http://www.dishnetwork.com/content/products/receivers/dvr/index.shtml> (visited Jan. 14, 2005). The DISH Player-DVR 510 retails for \$299; the DISH Player-DVR 921 retails for \$999. EchoStar also offers on a lease-only basis the DISH Player-DVR 522. The standard DVR receivers 501/508 retails for \$299, and the DISH 721 receiver retails for \$549.

³⁵⁶ Rainbow DBS Company LLC, at http://www.voom.com/see_it/future.jsp (visited Jan. 14, 2005). VOOOM does not provide an expected date for introduction of this equipment.

69. DIRECTV continues to offer an HD programming package, which includes ESPN HD, Bravo HD+, Discovery HD Theater, HD Net and HDNet Movies.³⁵⁷ In July, DIRECTV and NBC Universal Cable announced a long-term, multi-platform carriage agreement, which will allow the distribution of NBC network programming in HD format.³⁵⁸ EchoStar offers an HD programming package that consists of five HD nonbroadcast channels, including TNT HD, ESPN HD, Discovery HD Theater, HDNet, and HDNet Movies, and offers a distant CBS HD network feed to qualified subscribers.³⁵⁹ VOOM's primary sales and marketing focus is HD programming, and VOOM offers a total of 35 HD channels, including 21 HD channels only available to VOOM subscribers as well as nonexclusive channels, such as ESPN HD, Bravo HD+, TNT in HD, Discovery HD Theater, and Fox Sports Net Florida.³⁶⁰ With respect to VOD, DBS operators do not presently offer real-time on-demand programming because they lack capacity on their satellites to store programming and provide feeds to individual subscribers. DIRECTV and EchoStar use their DVR set-top boxes to stream a limited number of programs to the DVR ahead of official broadcast date to allow playback on demand. In addition, EchoStar reserves a channel for its "Dish Home" service, through which a customer can access a number of interactive channels, such as news, weather, sports, games, and customer care features. EchoStar downloads updated information on a regular basis to the set-top box.³⁶¹

C. Broadband Service Providers

70. In our *2001 Report*, we addressed a new class of providers called BSPs.³⁶² We now recognize overbuilders (municipal, independent, and CLEC overbuilders alike) as BSPs because most, if not all, operate state-of-the-art networks capable of providing bundles of services (*i.e.*, voice, advanced video, and data services).³⁶³ As we have noted previously, however, BSPs continue to face considerable

³⁵⁷ DIRECTV Group, Inc, at http://www.directv.com/DTVAPP/Imagine/HDTV_package.dsp (visited Jan. 14, 2005). The DIRECTV HD Package costs \$10.99 per month. A customer requires an HD ready television set, a DIRECTV HD receiver and multi-satellite dish, and, in order to receive local HD broadcasts, an off-air HD antenna. According to DIRECTV's website, a DIRECTV HD receiver and multi-satellite dish retail for \$299.00, but requires a one year commitment to any DIRECTV Total Choice programming package. An HD television is not included in the package. DIRECTV also sells an HD DVR receiver, which retails for approximately \$999.

³⁵⁸ David Lieberman, *NBC, DIRECTV Reach Deal on Fees, High-Definition Shows*, USA TODAY, July 28, 2004; DIRECTV Group, Inc., *NBC Universal Cable and DIRECTV Reach Long-Term Multi-Platform Agreement* (press release), July 28, 2004.

³⁵⁹ EchoStar Comments at 21. EchoStar customers subscribing to HBO The Works and Showtime Unlimited also receive HBO HD and Showtime HD, respectively, for no additional cost. EchoStar also offers one HD PPV event channel. *Id.*

³⁶⁰ VOOM's exclusive HD programming includes HD News (24-hour news channel), six channels of HD Cinema, HD Classic Movies, HD Epic movies, HD Gunslinger (western movies), Divine HD (gay and lesbian programming), HD Monsters (horror movies), Equator HD (world geography), WorldSport HD (world sporting events), Rush HD (extreme action sports), Rave HD (music videos), Ultra HD (fashion, beauty, and style programming), Auction HD (auction news, previews, and live auctions), Gallery HD (art, architecture and theater performance), MOOV HD (original non-narrative video art), and Animania HD (animation).

³⁶¹ According to EchoStar, the service is provided free to all of its subscribers, although subscribers must have a set-top box embedded with Open TV software to use the feature. See EchoStar Communications Corp., *Dish Network Launches New Interactive TV Programs: Buzztime's Trivia, Fantasy Cup Auto Racing* (press release), Apr. 12, 2004. See also at <http://www.dishnetwork.com/content/products/itv/index.shtml> (visited Jan. 14, 2005).

³⁶² We define broadband service providers (BSPs) here as, "newer firms that are building state-of-the-art facilities-based networks to provide video, voice and data services over a single network." The term BSP is not intended to imply anything with respect to Commission policy or proceedings that might involve broadband services. Usually, the services of a BSP can be purchased separately as well as in a bundle. *2001 Report*, 17 FCC Rcd at 1296-97 ¶ 3. See also *2002 Report*, 17 FCC Rcd at 26948-52 ¶¶ 102-11.

³⁶³ *2003 Report*, 19 FCC Rcd at 1658-59. ¶ 78. See also NATOA Comments at attachments.

challenges, many of which are discussed below. As a result, competition to cable from BSPs is limited to very few markets.³⁶⁴

71. **OVS.** In 1996, Congress established the open video system (OVS) framework, one of four statutorily-recognized options for the provision of video programming services by LECs.³⁶⁵ BSPs are the only significant holders of OVS certifications or local OVS franchises.³⁶⁶ Among BSPs, however, those operating under the OVS framework are in the minority. BSPA reports that approximately eight percent of the 4.2 million homes passed by its members, or 336,000 homes, are passed by systems operating with an OVS certification.³⁶⁷

72. **BSP Overbuilders.** RCN Corporation is the nation's largest broadband overbuilder supplying voice, video, and high-speed Internet access services to residential subscribers over its own network in the Boston, New York, Chicago, San Francisco, Los Angeles, Washington, D.C, and Philadelphia and Lehigh Valley, Pennsylvania markets.³⁶⁸ Currently, RCN is the 11th largest MVPD with 436,700 subscribers as of September 2003.³⁶⁹ RCN filed for Chapter 11 bankruptcy in May 2004 as part of "a consensual balance sheet restructuring."³⁷⁰ On December 21, 2004, RCN announced that it had consummated its reorganization plan and emerged from bankruptcy.³⁷¹ WideOpenWest (WOW) is the second largest overbuilder. WOW is the 15th largest MVPD and, as of September 2003, served 288,000 subscribers.³⁷² The third largest BSP is Knoxville, Tennessee-based Knology, which operates mainly in the Southeast. Knology has experienced significant growth since June 2003, primarily through acquisition of Verizon's overbuild properties in California and Florida,³⁷³ although Knology later sold the Cerritos, California

³⁶⁴ 2003 GAO Report at 3-4.

³⁶⁵ 47 U.S.C. § 571(a)(3)-(4); 1996 Report, 12 FCC Rcd at 4395-98 ¶¶ 68-71. Open video systems are subject to reduced regulation under Title VI. Among other things, an open video system's carriage rates are entitled to a presumption that they are just and reasonable where one or more unaffiliated video programming providers occupy channel capacity on the system at least equal to that of the open video system operator and its affiliates. We are not aware of any OVS operator carrying programming offered by an unaffiliated program packager. Open video systems are subject to, among others, the Commission's rules governing must carry, retransmission consent, program access, sports exclusivity, network nonduplication, syndicated exclusivity, and public, educational and governmental (PEG) access channels. *Id.* When it authorized the OVS framework, Congress abolished the Commission's video dialtone (VDT) framework under which LECs previously had offered video services.

³⁶⁶ For a complete list of OVS certifications, see Current Filings For Certification of Open Video Systems, at <http://www.fcc.gov/mb/ovs/csovscer.html> (visited Jan. 14, 2005).

³⁶⁷ BSPA Comments at 6-7. BSPA reports that its members represent two-thirds of the BSP industry segment, so this constitutes a lower-bound estimate of homes passed by OVS-certified. *Id.* at 7. Comparing the list of BSPA members to OVS certifications indicates that an even higher percentage of OVS operators are represented by BSPA.

³⁶⁸ RCN Comments at i and 1. RCN agreed to buy out from Pepco Communications a 50 percent share of its Washington, D.C. system. RCN partnered with Pepco to launch in the Washington, D.C. market. See RCN, *RCN Elects To Acquire Remaining 50% Stake Of Washington, D.C. Operations* (news release), Oct. 19, 2004.

³⁶⁹ NCTA, Cable Developments 2004.

³⁷⁰ RCN Comments at 4. See RCN Corp., at <http://www.rcntomorrow.com> (visited Jan. 14, 2005) for details about the restructuring. On October 13, 2004, RCN filed a letter describing its Plan of Reorganization and informing the Commission that it has filed or is in the process of filing applications with the Commission to obtain those approvals necessary to implement the plan. See Letter from Jean L. Kiddoo and Edward S. Quill, Jr., Counsel for RCN Corporation, to Marlene H. Dortch, Secretary, FCC (Oct. 13, 2004). See also RCN Corporation, *RCN Corporation Announces Emergence From Bankruptcy* (press release), Dec. 21, 2004.

³⁷¹ *Id.*

³⁷² NCTA, Cable Developments 2004.

³⁷³ Knology, Inc., *Knology Announces Agreement To Purchase Broadband Assets* (press release), July 18, 2003.