

Broadband Video Transmission

Broadband has become synonymous with "always on" Internet connections and digital high-definition television (HDTV). It describes the digital technologies that provide consumers with integrated access to voice, high-speed data services, video-on-demand (VOD), and interactive delivery services. This transmission concept developed slowly, and carried many of promises along the way. Today, most of these promises are being realized. It is estimated that 21.2 million households will have broadband access by 2003. The FCC's Telecommunications Act of 1996 mandating that any communications business be allowed to compete in any market by 2006, affectively raising the performance bar, acts as a driving force to bring homes and industries into the broadband realm. The numerous advantages of broadband, in addition to its speed, include enhanced picture quality, reliable transmission, and convenience. The convenience covers both television and computer use in the sense that the "always on" digital connection allows for video-on-demand and real-time interactions that before were not possible or severely limited in either media.

Broadband Applications

Broadband, a blanket term, describes an application that utilizes high speed, high bandwidth transmission. In the simplest description, broadband is merely a broader band through which information can pass; it is sometimes referred to as the "fat pipe." This means that multiple channels and can be transmitted digitally over a hybrid fiber coax or optical fiber at one time. The FCC requires that the quality of broadband, as an information service, carries a capacity of 200 kbps upstream, direction opposite the data flow or information from computer to the Internet, and downstream, direction of the data flow or information for the Internet to the computer. This carrying capacity accommodates the transmission of audio, video, and data services in an interactive format. Internet connections like DSL and cable modems all use the broadband scheme. Table 1 illustrates the amount of time it takes to download a 30 second video clip from the Internet based on connection speed. The disparity among the different connection speeds makes it apparent that broadband allows for more advanced and demanding Internet applications.

Table 1 - Connection Speed and Download Time

Connection Speed	30 Second Video Clip
28.8 kbps	4 Hours
56 kbps	2 Hours
<u>ISDN</u> (144 kbps)	55 Minutes
DSL/Cable (1.5 Mbps)	5 Minutes

Video-on-demand applications, such as TiVo™, allow viewers to digitally record programs for viewing at a later time. This makes television viewing more convenient by permitting the viewer to watch virtually whatever whenever from the comfort home. This technology operates through connecting the television set to the source (a set-top box, also known as digital video recorders, or DVRs) and recording to a hard drive. In addition to recording shows, other options for video-on-demand include searching for upcoming features and control over live television

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