

## Download speed for different types of content over different broadband connection speeds

File Size	1Mbit/s Cable/ADSL	2Mbit/s Cable/ADSL	8Mbit/s Cable/ADSL	24Mbit/s ADSL 2+	50Mbit/s VDSL/VDSL2	100Mbit/s FTTH
192Kbps music track (6MB)	00:00:56	00:00:28	00:00:07	00:00:02	00:00:01	00:00:00
192Kbps music album (80MB)	00:12:30	00:06:15	00:01:34	00:00:31	00:00:15	00:00:07
1hr HD-quality TV show (2GB)	05:12:30	02:36:15	00:39:04	00:13:01	00:06:15	00:03:07
SD-quality movie (1.5GB)	03:54:22	01:57:11	00:29:18	00:09:46	00:04:41	00:02:21
HD-quality movie (4.5GB)	11:43:07	05:51:33	01:27:53	00:29:18	00:14:04	00:07:02

Note: This includes a factor of 20 per cent overhead; excludes the affect of line contention and other factors such as loop length from the exchange/cabinet (DSL) that can bring down throughput

Source: Screen Digest

that are responsible for distributing that content.

The number of videos streamed at leading video-sharing site YouTube's websites in US, France, Germany and Spain has seen phenomenal growth. Screen Digest estimates there were over 30bn videos served in 2007 by user-generated websites and social networks such as YouTube and MySpace. This figure is forecast to pass 57bn user-generated streams in the US by 2012.

Online TV content consumption in the US alone in 2007 totalled over 15bn videos streamed or downloaded (excluding movies, music videos, film trailers, adult, and content served by user-generated site video players). Screen Digest predicts that the volume of data

from legal online video services consumed in the US alone will exceed 300,000 Terabytes (TB) by 2012 - over 25 times the figure in 2006.

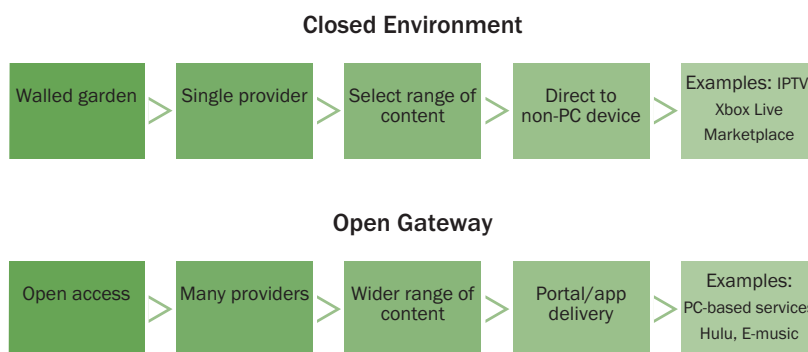
### The transition to high-definition (HD) video: a heavier load

The problem however isn't just a question of the number of streams. Not only is consumption increasing, but it is expected that the size of files being transported will also increase heading beyond 2010.

Major online video service providers in the US and Europe are already moving towards offering video at significantly higher more bandwidth-intensive resolution, with an eye towards matching the 480p, 720p (HD) and even 1080p offered by other distribution platforms (such as satellite TV, cable TV or even packaged media). Given that an HD video file is on average three to four times the size of its standard-definition (SD) equivalent, some ISPs are already fearing the spectre of a surge in HD video requests would strain the network load and push up data transit fees to render video distribution uneconomical.

For example, US broadcaster ABC launched 480p streaming of full shows of *Lost* and *Desperate Housewives* via its website in beta in July 2007; Hulu and CBS followed, hosting primetime episodes for streaming at the same quality through their services. Meanwhile, social network MySpace now offers HD trailers of movies, video-sharing site Dailymotion hosts users' clips in HD and ESPN.com has even shifted towards HD streaming of live sports. The BBC, for example, recently raised the resolution and encoding rate of video served through its iPlayer online catch-up service to 640 x 360 pixels encoded at 800kbit/s which increases

## Definition of closed and open broadband services



Source: Screen Digest

## Example of average monthly user data transfer by UK ISPs

Name	Type of ISP	Typical user monthly consumption 2008 (GB)
Carphone Warehouse	LLU/Wholesale DSL	2.4 (April)
Plusnet	Wholesale DSL	6.7 (January)
Virgin Media	Cable	8.2 (April)

Source: Screen Digest