

(Note: this is written in the perspective of when Qobuz was launched in 2007, not the modern day, as there are other services, such as Apple Music and Tidal that offer similar streaming)

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In order to make sure streaming lossless audio was even feasible in 2006/2007, I decided to research internet speeds in 2007 to see if average internet speeds were high enough for the theoretical bitrate of a 16 bit 44.1 kHz FLAC (hereby referred to as ‘CD-quality’).

Although I had issues finding exact figures for average internet speeds in 2006 or 2007, a FCC report from 2009 indicates a median speed of approximately 3-4Mbps in the US, so it is safe to assume that internet speeds in 2006/2007 will be slightly lower. In addition, a CNET article from 2009 references a report by the Communications Workers of America that claims an average US internet speed in 2007 of 3.5Mbps, and a 2009 average of 5.1Mbps. Therefore, I feel it to be safe to assume the average internet speed in the US in 2007 was at least 2Mbps, and was likely closer to 3Mbps. The same CNET article also reports the US ranking 28th worldwide for internet speeds, indicating the 2-3Mbps speeds to be at or below the average speeds for many countries.

As the Red Book (the standards book for Compact Disc Digital Audio) lists the bitrate of CD audio at 1411.2 kbit/s, which is equivalent to approximately 1.38Mbps, it can be assumed that a compressed FLAC file of CD-quality would not surpass this bitrate. This means that the majority of internet connections in the US, and likely Canada and Europe, can theoretically handle the required bandwidth for streaming lossless CD-quality audio in 2007.

Website:

https://denmanmax.github.io/CSC_461_HiFi_Streaming/

References:

<https://transition.fcc.gov/national-broadband-plan/broadband-performance-paper.pdf>

<https://www.cnet.com/tech/tech-industry/u-s-lags-other-nations-in-internet-speed/>

<https://www.travsonic.com/red-book-cd-format/>