Abstract —Streaming technology is a popular technology used by active users to entertain themselves for enjoying standard audio or video from an official broadcaster without typically doing a download first. Broadly, this technology needs high bandwidth to carefully keep its Quality of Service (QoS) at a reasonable level. Without enough bandwidth, a problem arises, such as packet loss. This condition can decrease the essential quality of content delivery. Generally, to properly handle that specific problem, cache technology can be utilized. This sophisticated technology can be implemented as temporary storage to increase data transfer when the streaming exists. One type of these technologies is Content Delivery System (CDN). Naturally, the position of CDN has to be placed not far from the user area, so the access time can be faster than the access time when the CDN is not used (as representative a common condition without this modern technology). Another contributing factor, such as the right video format selecting, also can provide a good impact. There are two popular formats for live video streaming, such as HLS (HTTP Live Streaming) and RTMP (Real Time Messaging Protocol). This study is going to elaborate on the comparative between HLS and RTMP with CDN and also without it. Global CDN infrastructure is built by using Amazon CloudFront. The result shows live video streaming with CDN has better performance than the other one without CDN. This pattern presents the same consequence for HLS or RTMP implementation. By HLS broadcasting from Bandung, Indonesia, and the player is located in California, live video streaming gives average throughput of 3415.9 kbps and average packet loss ratio of 0.01% by using CDN. Without using CDN, it presents the average throughput of 2994.7 kbps and an average packet loss ratio of 0.58%. If the location of the player is changed into Tokyo, it gives an average throughput of 4452.6 kbps and an average packet loss ratio of 0.08% by using CDN. Without using CDN, it presents an average throughput of 3990.4 kbps and an average packet loss ratio of 0.33%. By RTMP broadcasting from Bandung and the player is located in California, live video streaming gives an average throughput of 912 kbps and an average packet loss ratio of 0.05% by using CDN. Without using CDN, it presents an average throughput of 677.7 kbps and an average packet loss ratio of 0.69%. If the location of the player is changed into Tokyo, it gives an average throughput of 869.2 kbps and an average packet loss ratio of 0.04% by using CDN. Without using CDN, it presents an average throughput of 759.7 kbps and an average packet loss ratio of 0.19%.

Index Terms— live video streaming, Content Delivery Network, throughput, packet loss ratio, HTTP Live Streaming, Real Time Messaging Protocol