STREAMING UNIVERSITY
THE TELOS ALLIANCE®

Choosing a CDN

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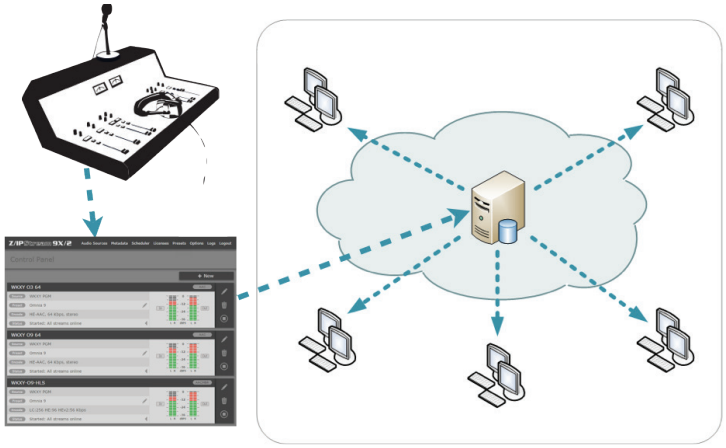
Your engineer has your audio processing and stream encoding done. Doesn't that just connect to the Internet so people can listen?

Well, it can be that easy, but for most streaming radio stations that won't be enough to get the job done.

If you expect a very small number of listeners - perhaps fewer than 50 or so - you could operate your own Streaming or Replication Server. And this is fine for some situations. But each listener to your stream adds to the data bandwidth needed. Ten listeners to a medium-quality audio stream will require 1 megabit of upload bandwidth; 100 listeners will need 10 megabits; 1,000 listeners will need 100 megabits, and so on.



Small audio or media distribution projects can be done in-house, or with some assistance from a Data Center. Some of the smallest radio stations and other webcasters simply use a computer running SHOUTcast or ICEcast to serve audio streams to a few dozen listeners.

A copy of SHOUTcast Server can run on a separate PC, or even on the same PC that's running your processing and encoding software. SHOUTcast Server is relatively easy to set up, and there are many forums and video tutorials on the Internet to help. The biggest drawback to self-distribution is tying up all your Internet bandwidth to serve a couple dozen listeners. Even with an MP3 or AAC stream of a 64 kbps audio bit rate, the overall bit rate for each listener will be close to 100 kbps. Just 10 listeners will consume almost one megabit per second - and this is in your Internet connection's UPlink direction. One hundred listeners would consume almost 10 megabits per second - more than many business-class Internet connections offer now.

The next step up is to send ONE stream to a media server - again, SHOUTcast, ICEcast, or similar - that is at a high-bandwidth location, such as a commercial data center. Quite a few choices are available to rent SHOUTcast and similar server bandwidth. A newer possibility is to rent an Amazon Web Services server to distribute audio using Apple HLS. Apple HLS - like Microsoft Smooth Streaming and MPEG-DASH - is an adaptive bitrate technology that will likely, over time, become the predominant method for audio streaming. While this can be a do-it-yourself project, most webcasters will secure the services of a Content Distribution Network or CDN. CDN can also stand for Content Delivery Network; the two phrases are basically interchangeable.

A CDN's servers are located in data centers, offering enough bandwidth to serve from hundreds to hundreds of thousands of listeners. Even if you expect only a few dozen listeners at a time, a good CDN's services are vital to the success of your web streaming efforts.

Professional CDNs offer their own suite of services, geared to persuade the web broadcaster that theirs is the best CDN choice. For example, Triton Digital offers what they call “Webcast Metrics”, about which they say, “Webcast Metrics (WCM) is the industry standard for digital audio listening data. It provides credible, third-party data that is translated into traditional and digital metrics, making it possible for audio publishers to quantify the size and scale of their online audience.” Triton goes on to say, “Accredited by the Media Ratings Council (MRC) and audited annually by Ernst & Young, Webcast Metrics is the trusted source for online audience listening data.”

At the other end of the CDN spectrum are small companies offering SHOUTcast and ICEcast server rental. These can be very inexpensive - as low as $10 to $50 per month. Some of these services offer support by e-mail only, and there may not be any guarantees about uptime. Further, extensive reporting and geofencing may not be available.

The services, prices, and plans offered by Content Distribution Networks are truly all over the map. To show you some of the chaos in the current marketplace, consider SHOUTcast, which was acquired by Radionomy, which has had controlling interest bought by Vivendi. SHOUTcast used to simply make software to listen to streams and to encode and distribute streams. Through these corporate mergers and purchases, SHOUTcast is now acting as a CDN with an offer free distribution. The conditions are that the streaming broadcaster must agree to hand over 4 minutes of every hour for SHOUTcast to insert their own commercials. Also, your stream must be popular enough to attract at least 500 listening hours per day. Is this kind of stream distribution appropriate for you? Worth considering, but yoiu may want to examine the other options before deciding.

In the comfortable middle of the CDN range are companies that offer conveniences on top of basic audio stream distribution. Some of these middle-ground CDNs offer app development for individual stations or publishers. CDNs can also provide regular reports of the number of connected listeners for each song or other content segment. This analytic data is useful not only for programming feedback, but also for accurate calculation of music licensing fees.

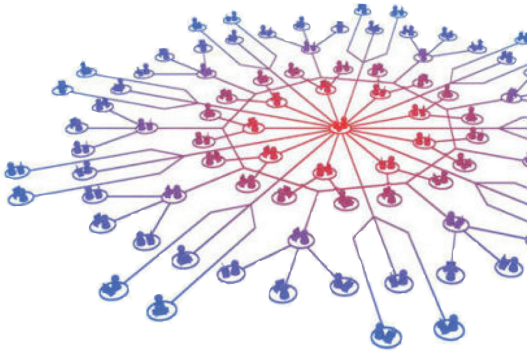
Some CDNs offer additional services, including app development, web player software, and revenue opportunities.

Some middle-sized CDNs are working to increase their capacity and reliability. This kind of expansion can include redundancy. It also places stream servers closer to more listeners. This reduces latency and increases reliability, as it reduces the number of router hops on the Public Internet between the listener and a stream server.

One of the medium-sized CDNs provided us with a list of their key services and benefits. I've divided these into 3 short categories.

Firstly, The Network. This is typically general claims about the technical delivery capabilities of CDN.

- Serve as the delivery network for live and on-demand content
- Provide mission critical and high volume CDN delivery
- Support new codecs and protocols as your desire to reach new platforms expands



Secondly, Reporting and Consulting: Here are some claims about the consultative capabilities of the CDN.

- Provide detailed statistics and analytics for usage monitoring and reporting
- Advise on up to date best practice methods for live broadcasting and podcasting
- Adapt to additional requirements for any new syndication partnerships

Thirdly, Revenue: Some CDNs provide ad insertion support as well as subscription income. This CDN claims to...

- Provide service and support for targeted ad insertion
- Monetize content through subscription-based streaming

One more service provider to be ware of is Wowza Media Systems. Wowza's chief offering is the Wowza Streaming Engine. This server ingests one high-quality stream from your facility and transcodes it to different bitrates and even different audio codecs and streaming types. Wowza is designed for both video and audio-only streaming, and is claimed to support all playback device formats and common third-party players.

More recently, Wowza is offering complete CDN services as well, complimenting their multi-format streaming engine server.

The spectrum of services, professionalism, and infrastructure offered by CDNs varies widely, to say the least. The foregoing information is not intended to point the reader in any particular direction toward choosing a CDN. Rather, this information is provided to familiarize the reader with some of the concerns, terminology, and offerings from the various providers. When choosing a CDN you'll be asking a lot of questions, comparing pricing, and looking at the CDN's promises about reliability, plus their willingness to offer customer-facing apps.