

How Streaming Media is Similar to Both a Phone and a TV

By Paul Carney

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Describing Technology for Business <http://www.ishtot.com/article0221.htm>

Do you own one of those cool video phones that let people see each other while they talk? You know, those gadgets that we have been talking about for over 25 years? No, neither do I.

Where are these devices? One could say that our current telephone lines don't have the bandwidth to support both audio and video. While others may state that people just do not want to see the other person (or more likely, be seen).

Whatever factor keeps the marriage of the telephone and television from happening, that is not the case on the Internet. The concept of "Streaming Media" is catching on and becoming a major player in our crusade to be "connected".

What Is Streaming Media?

"Streaming Media" is exactly as it appears: media (either audio only or audio/video) that is "streamed" across the Internet to your device. The full contents of the media are not downloaded to your computer, only pieces at a time.

Downloading an MP3 or movie video clip file to your computer is not "streaming media" because you are downloading the entire contents of the "media" to your computer. The media file is then played from your hard drive using any tool that can read the type of media you are trying to play.

In streaming media, your device has to constantly receive chunks of the media while playing the ones that have already arrived. To do this, the item that is playing the media (either hardware or more likely software on your computer) has to "buffer" the chunks of data in order to offer a smooth playback.

This "buffering" simply means that your device has stored more than enough of the media to start playing back while receiving the next pieces. The trick is to buffer enough content so that your playback does not catch up with the current piece being downloaded. That is where your "Internet Connection Bandwidth" comes into play.

Comparing Bandwidth to a Walk on the Beach

Most of you understand that "high-speed" Internet access helps take care of the bandwidth issues,

but here is a chart of approximations to help put it all in perspective by comparing the fastest Internet connection to a 60 MPH vehicle:

- Type of Connection:
Connection Speed:
MPH:
Comment:

- Cable Modem/T1
1.5 Mbps +
60 MPH
Vehicle Highway Speed

- Fast DSL
760 Kbps
30 MPH
Vehicle Neighborhood Speed

- ISDN/Slowest DSL
128/144 Kbps
5.5 MPH
Quick 1-Mile Runner

- Fast Modem
56 Kbps
2 MPH
A Leisurely Walk

- Slow Modem
28.8 Kbps
1.2 MPH
A Very Casual Walk on the Beach

I bet you have never thought of bandwidth like that! The point is to understand the significant difference that exists between the home modem connection at 28.8 and the office T1 line. This will help your business understand the perspective of a modem user (who is not going away for quite a few years).

The Concept of Webcasting

"Web Casting" has nothing to do with trying out for a part in an Internet movie. It is the process of getting the streaming media content from its source to you across the Internet. The software that is typically used for listening and/or viewing is Microsoft's Windows Media Technology, RealNetworks RealPlayer and Apple's QuickTime. But that is not all there is to webcasting. There are two types: "unicasting" and "multicasting".

"Unicasting" is the simplest form of webcasting. In this scenario, each user makes a connection to an Internet server that sends the streaming media. This is like you picking up the phone to make a call or your computer trying to connect to your ISP. Your act of dialing the phone causes the phone company to make a physical connection from you to the other party. While you are using the connection, no one else can.

"Multicasting", on the other hand, is the process by which one "stream" of data can be used by multiple people. This is like a radio or television broadcast: the station sends out the signal over the airwaves and if you have the right equipment tuned to the proper frequency, you can pick up the signal. In this case, the station is only sending one signal for all to use, so there are no "limited connections" or "server is too busy" issues.

So why doesn't the Internet become a complete multicasting unit? The servers and routers (the hardware that routes all Internet traffic) are not built to handle multicasting. They are simply built to deliver packets of data from one Internet address to another. They do not have the inherent capability to keep passing a packet around until everyone that wants it can get it.

There are efforts under way to enhance the equipment on the Internet to handle this capability, but the push to upgrade equipment will only occur when there are significant demands for the service. And oh yeah, when someone brings some money to the table!

Concept Review

"Streaming Media" delivers the concept of bringing Internet-based, high-speed, interactive audio and video to electronic devices. But the current struggles with bandwidth to handle this volume of information will delay full implementation for at least another 12-24 months.

Even at that point, the Internet components (both hardware and software) will have to be upgraded to handle the multicasting traffic, and that will only happen when there is money to be earned to cover the upgrade costs.

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