How Data is Transmitted and Converted in a Video Conference

The core of a video conferencing system consists of elements that enable the capture and transfer of video images and audio sounds. These elements are:

- **Video input** – 2 or more video cameras or web cams; possibly digital projectors / whiteboards.
- **Audio input** – microphones either centrally located or on individuals.
- **Video output** – monitor, computer screen, television and/or projector.
- **Audio output** – professional speakers, headphones or laptop computer speakers.
- **Codec** – hardware or software-based coder-decoder technology that compresses analog video and audio data into digital packets and decompresses the data on the receiving end.
- **Echo cancellation software** – diminishes audio delays to enable real-time conversation.
- **Network for data transfer** – today most video conferencing is transmitted over a high-speed broadband Internet connection, using similar technology as VoIP (Voice over Internet Protocol) but LAN and occasionally ISDN connections are used.

How Does Data Compression Work?

The camera and microphone capture analog video and audio signals from a video conference. These data are a continuous wave of amplitudes and frequencies representing sounds, color shades, depth and brightness.

Enormous bandwidth would be required to transmit this data without compression, so codecs (hardware/software technology) compress and decompress the data into digital packets.

How Does the Data Transfer Work?

Once digitally compressed, the video and audio data can be transmitted over a digital network.

In most cases, a broadband Internet connection is the preferred network.

Data is sent to the other participant's video conferencing system and then decompressed and translated back into analog video images and audio sounds.