Uncompressed HDTV Multi-stream Server (i-Visto eXmedia Server)

NTT Network Innovation Laboratories, NTT Network Service Systems Laboratories

The increasing popularity of terrestrial digital broadcasting and non-linear video editing systems*1 in recent years has been impetus for a rapid movement toward high-resolution video in a digital format. On the other hand, the IP network is increasing in bandwidth and decreasing in cost. These circumstances motivated the NTT Laboratories to develop the i-Visto eXmedia server, which can store and distribute high-quality video such as uncompressed HDTV*2 over an IP network.

This server uses a cluster of PCs connected by a local network and technology for high-speed, low-delay data transfer within the cluster that was developed by the NTT Laboratories to achieve a simultaneous video distribution performance of up to 25 Gbit/s. This performance is equivalent to 16 streams of uncompressed HDTV video or 200 streams of HDTV VTR-quality compressed video. In addition, any video data stored in the server can be accessed by multiple users simultaneously over an IP network. The i-Visto gateway can also be used to record video from a camera over an IP network in real time, so multiple live video streams from remote locations can be recorded by the server via an IP network.

In 2005, we conducted various operational experiments in collaboration with a TV broadcasting station. First, the video for the summer national high-school baseball tournament was transmitted uncompressed and recorded by this server. The rough editing functions*3 of the server were used to verify the work flow for the creation of news materials. In addition, a camera that was set up at the Expo 2005 in Aichi Prefecture was operated remotely and the video was transmitted to the TV station via an IP network. Stable use of the video as live broadcast material over a half-year period was possible. Also, verification tests that involved live transmission of the high-school baseball video mentioned above to the Aichi Expo Expovision and remote two-way jam sessions with Amsterdam, etc., taking advantage of the merits of high-quality and low-delay, demonstrated the superior performance and practical level of stability of this system. In the future, we plan to continue building up practical experience in operation of this system through joint test, etc, and use the feedback from users in moving forward toward a commercial system.

*1 non-linear video editing system: A computer based video editing system which can edit video materials stored in disks.
*2 HDTV: High Definition Television
*3 rough editing function: A function for extracting arbitrary scenes from any video consecutively.

Video IP network system using i-Visto eXmedia server