

Scalable Video Software Codec Enabling Realtime Processing of Standard-TV-Quality Video

NTT has developed a scalable video software codec that enables realtime processing of video at standard TV quality (VGA*) at 30 frames per second. A scalable video bitstream can provide multiple video qualities, so video can be viewed at an appropriate quality level according to the network bandwidth and terminal performance. This codec can process images at a resolution about four times that of ones using existing scalable codec techniques without having to employ expensive dedicated hardware.

Using this codec, NTT has also developed a multipoint videoconferencing system based on the server-client system. Besides allowing video to be viewed at a quality level appropriate to the network bandwidth and terminal performance, this system can also raise the quality of a small portion of the picture called the "region of interest" (ROI) on a client-by-client basis. It does this by lowering the quality of the rest of the picture and retrieving the data encoding the high-resolution details for that portion at high speed. This function lets a user make a portion of the screen clear and detailed for easier viewing. The system can also process network-bandwidth and ROI requests from multiple clients at high speed, enabling several dozen users to be simultaneously connected to one server.

While existing multipoint videoconferencing systems support only a single bandwidth in video viewing, this codec can meet the network-bandwidth and

ROI needs of each and every user. It has the potential to be used in a wide variety of fields such as remote education and remote monitoring where multiple users with various different communication bandwidth environments share the same video bitstream.

In the future, NTT plans to provide video-communication services that can deal flexibly with network and terminal performance over a mature IP (Internet protocol) network by incorporating this codec as a platform technology. And with an eye to further enhancements, NTT will study the implementation of a scalable codec using the H.264/MPEG-4 AVC (advanced video coding) standard that provides higher compression efficiency than MPEG-4 ASP (advanced simple profile).

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* VGA: video graphics array. A graphics display system for personal computers (PCs) developed by IBM. VGA has become one of the *de facto* standards for PCs. In text mode, VGA systems provide a resolution of 720 × 400 pixels. In graphics mode, the resolution is either 640 × 480 (with 16 colors) or 320 × 200 (with 256 colors). The total palette of colors is 262,144.
(source: <http://www.webopedia.com/TERM/V/VGA.html>)