Real-time video chat application performance measurement tool

Capture-to-display latency (CDL) and frame-rate are two metrics that provide quick insights into the performance of real-time video applications such as video chat and conferencing. This technology, called vDelay, is an easy to implement, low cost, and automated software tool for measuring the CDL and frame-rate of commercially available video chat applications. vDelay consists of two applications running on the caller machine and the callee machine respectively. The caller agent encodes the captured frame including a timestamp and sends it over the network to the callee, which decodes the frame and displays it on the monitor. The callee agent grabs the timestamp from the received frame and calculates CDL and frame-rate. vDelay can calculate CDL even if the clock synchronization may not be possible.

Measure CDL and frame-rate on any operating system without modifying the video chat application and without any additional hardware

vDelay represents an easy to implement method for measuring CDL and frame-rate which does not require modification of the video application. Thus, it can be used to measure the CDL and frame-rate of closed-source video applications. Unlike existing video latency measurement tools such as OmniView, vDelay performs the measurements without using any specialized hardware. Finally, the program is written in Java so it can be used on any operating system. vDelay has been used to measure the CDL and frame-rate of popular video chat applications such as Skype, Windows Live Messenger, and Gmail video chat, even in the presence of bandwidth variations.

Lead Inventor:

Henning Schulzrinne, Ph.D.

Applications:

- A software tool to evaluate the performance of video chat applications
- Built-in video chat quality monitor
• Web conferencing
• User verification for video chat security

Advantages:
• Allows for measurement of CDL and frame-rate of real-time video chat applications without modifying the source code of these applications
• Does not require any specialized hardware
• Platform-independent; can be run on any operating system
• Can be used to measure CDL and frame-rate in the presence of bandwidth variations

Patent information:
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Related Publications:

Inventors
Henning Schulzrinne