

## W\*USA Brings High Definition to the Web with Digital Rapids StreamZHD

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WUSA-TV, a Gannett Co. Inc. station, is the CBS affiliate in Washington, DC. WUSA has a rich history of pioneering achievements, including being the first station in Washington, D.C. and sixth overall in the U.S. to present its local live newscasts in HD. Our Web site, WUSA9.com, was also the first local broadcast station website to offer streaming video for local news.



Having proven ourselves as a leader in both HD and leveraging streaming video for local news on the Web, our next objective was to bring the two technologies together – delivering web streams in high definition not only on demand, but also live. Finding the right encoding and streaming system was critical to the success of this project. After considerable research, we decided that the Digital Rapids StreamZHD was the only solution that met our requirements for real-time, high-quality live streaming at HD resolutions.

Extensive testing was done to find the right combination of codecs, resolutions, frame rates and bit rates to deliver the best quality while remaining accessible to the broadest possible audience. The public

launch of our new high definition web streaming capabilities took place on January 23, when we streamed the pool feed of the President's State of the Union Address live on the Web in HD.

The high definition pool feed of the event was sent over HD-SDI to StreamZHD, which encoded and streamed it in SMPTE VC-1 compliant Windows Media Video format (Microsoft's implementation of VC-1) in real time at 1280x720 frame size. We had also tested successfully at higher frame sizes, but chose to be conservative with our initial deployment. Two DRC-Stream standard-definition encoding boards with Digital Rapids Stream software were also used to provide SD and smaller streams for users with lower-bandwidth connections. The encoders all worked flawlessly.

A total of four streams were provided at 3.2Mbps, 1Mbps, 500Kbps and 56Kbps data rates. The streams were delivered over a 10Mbps line to Akamai, which we use as our content delivery network for both on-demand and live streams.

StreamZHD is a combination of hardware and software. In addition to ingest capabilities, the hardware provides pre-processing of the input signal including motion adaptive de-interlacing and noise reduction. By performing the pre-processing in the hardware, StreamZHD keeps this workload off the CPUs and provides outstanding visual quality in the encoded result.

The system's tightly integrated software interface makes configuration and operation of StreamZHD easy and efficient. Unlike single-function systems or those that require the use of multiple standalone utilities for different tasks, the Digital Rapids Stream software lets us do live streaming, file-based transcoding and encoding of files for on-demand viewing from one streamlined user interface. The Stream software even lets us encode to multiple compression formats, frame sizes and bit rates simultaneously.

The ever-increasing bandwidth available to content consumers enables higher-quality viewing experiences for our audience, and enables us to differentiate our web offerings. We intend to make as much HD content as possible available through the WUSA Web site – both live events and on-demand streaming of archived clips and programs. Digital Rapids StreamZHD has given us the technical capabilities to efficiently achieve this goal.

**The User:** WUSA-TV

**The Challenge:** high-quality live streaming at high definition resolutions

**The Solution:** StreamZHD

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capture

encode

deliver

"The system's tightly integrated software interface makes configuration and operation of StreamZHD easy and efficient."

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