

RapidUsers

Lincoln Center for the Performing Arts Adds HD Streaming with Digital Rapids' StreamZHD

The User

Lincoln Center for the Performing Arts, New York

The Challenge

high-quality encoding and streaming of high definition content for live and on-demand distribution

The Solution

StreamZHD

by Rob Tarleton, Chief Technology Officer, Lincoln Center for the Performing Arts



Lincoln Center is the world's leading performing arts center. Located on 16.3 acres in New York City, the Lincoln Center complex is comprised of 12 resident organizations, including Lincoln Center for the Performing Arts, Inc.; The

Juilliard School; The Metropolitan Opera; New York City Ballet; New York Philharmonic, New York City Opera, School of American Ballet, Film Society of Lincoln Center, Jazz at Lincoln Center, Lincoln Center Theater, Chamber Music Society of Lincoln Center, and New York Public Library for the Performing Arts. Together, the 12 institutions present thousands of performances, educational programs, tours and other events each year on the Lincoln Center campus.

As the Chief Technology Officer of the Lincoln Center for the Performing Arts – the organization responsible for managing the Lincoln Center facilities, as well as being the world's leading presenter of programming – I am responsible for ensuring that the Lincoln Center is supported by state-of-the-art technology at a level of excellence commensurate with the caliber of events that we host. One of our technology centerpieces is the full high definition (HD) production environment at the Lincoln Center's Alice Tully Hall. A key component of our HD capabilities is live and on-demand HD encoding and streaming using Digital Rapids' StreamZHD.

Equipped with four robotic HD cameras, Alice Tully Hall is linked to the facility's data center through a single-mode fiber infrastructure. Communication Specialties' FiberLink product is used to interface the fiber infrastructure with HD-SDI signals. The data center is the hub of our HD operations, housing our HD servers, routers, encoders and other related equipment. Here, a StreamZHD system receives source content over HD-SDI and encodes it for live or on-demand external distribution. Resulting on-demand files are hosted for audience distribution in our own streaming environment; live streams are typically distributed through CDN services from Incited Media, depending on audience size.



Above: Rob Tarleton, Chief Technology Officer

Lincoln Center's streaming capabilities recently supported the concurrent worldwide debut performances of "The Laramie Project: Ten Years Later", the epilogue to the acclaimed Tectonic Theater Project play. An on-stage pre-show event was streamed through StreamZHD to audiences in theaters worldwide. Over 150 theaters spanning all 50 states and 14 countries – reaching audiences as far away as China – watched live or time-shifted streams of the pre-show speeches and introductions. Streaming was then suspended as live readings of the new play were performed at each theater, with the original cast delivering the Lincoln Center performance. Following the performance, streaming from Lincoln Center resumed with a live, interactive Q&A session. Questions were submitted through the Twitter social networking and micro-blogging service, with answers streamed to the participating theaters.



Above: Lincoln Center's Alice Tully Hall, Laramie Project Q&A with questions submitted via Twitter. Photo credit: Aaron Epstein

Streams were provided in three different bit rates for maximum audience accessibility, and encoded in the H.264 compression format for viewing through Adobe Flash. We chose the Flash platform for its ubiquity, with its deep market penetration and as the most operating system agnostic solution for viewers. In addition to three concurrent live streams, we also simultaneously created three equivalent file-based archives. In addition to allowing us the option of making them available on-demand at a later date, these archive files supported the time-shifting requirements of those theaters (mostly in different time zones) that chose to hold their performances later in the day rather than simultaneously. Files of the pre-show event were uploaded to a server by FTP during the live performance, and downloaded by the theaters for their subsequent presentations; similarly, files of the post-show Q&A were also distributed by FTP. The StreamZHD system produced all six outputs (the three live, and three archive) simultaneously in real time.



Above: StreamZHD installed in the Lincoln Center data center

StreamZHD was recommended to us by our systems integrator, HB Communications, and installed as part of our overall HD deployment. We built this project with replication and budget in mind. We didn't want to create monolithic infrastructure or workflow that we couldn't sustain and re-use for other projects within our operational budget, both in human cost (operators) and technical cost.

The ability to stream at HD quality over the Internet is phenomenal. Our streaming of the Laramie event was very well received, and we look forward to using StreamZHD to support future events. High definition streaming and our HD production capabilities are key benefits for artists, performers and groups holding events in Alice Tully Hall at the Lincoln Center, and StreamZHD is an important part of making that happen.