Skywalker Sound Uses NTT-AT’s JPEG 2000 Real Time Codec for Digital Post-Production Remote Collaboration

Skywalker Sound has used the latest professional media-streaming platform from Japan’s NTT Advanced Technology Corporation (NTT-AT) to pioneer a new approach to real-time remote collaboration for digital cinema post-production over high-speed networks.

The innovative new workflow allows a filmmaker, while sitting at Skywalker Sound, to interactively view 3D stereoscopic visual effects coming from a VFX house many miles away—all at full post-production studio quality, in real-time over high-speed networks. The process used visually lossless JPEG 2000 compression.

Often, a filmmaker will need to spend weeks working intensely on the final sound mix of their movie at Skywalker Sound, a Lucasfilm Ltd. company in northern California serving the digital needs of the entertainment industry for audio post-production. But during the same weeks, the final versions of key 3D stereo visual effects (VFX) for the movie would have to be completed by the artists and engineers at a visual effects post production facility, which can be hundreds or even thousands of miles away, a creative effort requiring critical viewing and immediate nuanced feedback by the director. Skywalker Sound has pioneered a new approach to remote collaboration using advanced networks to carry very high quality motion pictures in real time, so that the director and creative team could efficiently work on both aspects of the movie’s final post-production process from inside the Skywalker facilities without compromising quality or inhibiting the human collaboration at the heart of making great cinema.

As a member of CineGrid, a non-profit organization dedicated to research in networked media applications, Skywalker Sound was able to establish a 1 Gigabit Ethernet CineGrid test-bed link to other CineGrid members in Hollywood in order to prototype this previously unproven remote collaboration workflow.
Skywalker Sound evaluated NTT-AT’s JPEG 2000 streaming platform and selected it to be installed at both its own facilities in northern California and at its counterpart’s facilities in southern California. The visually lossless, real-time compressed IP transmission capabilities of the NTT-AT JPEG 2000 technology allowed digital media sharing over networks at the high-quality needed for digital cinema post-production without requiring time-consuming media file transfers that can slow down the creative process. The goal was to make it possible for everyone involved creatively at both locations to be able to watch exactly the same shots at exactly the same time, in the same quality on matched calibrated displays.

Steve Morris, Director of Engineering of Skywalker Sound, says “NTT-AT’s JPEG 2000 Real Time Codec enabled us to handle 2K stereoscopic 3D video streaming over long-distance GigE networks very easily and reliably.”

On-site engineering integration was straightforward, accomplished by plugging the multi-channel NTT-AT streaming hardware into the HD-SDI routed production infrastructures at the two facilities, and then linking the NTT-AT streaming platforms at the two locations to each other over a 1 Gigabit per second virtual local area network (VLAN.) Artistic and directorial staff at both facilities were able to view in real time—at the same moment and with the same quality—3D stereo VFX shots (synchronized left/right eye views).

To allow the easy interactive give and take that naturally occurs when collaborators work together in the same room, the NTT-AT JPEG 2000 streaming platform was configured to additionally support bi-directional, high-quality, low-latency HDTV video conferencing between the screening rooms at both facilities. The JPEG 2000 videoconference links were always on, running in parallel to the independently synchronized dual JPEG 2000 streams carrying the left-eye and right-eye of the 3D stereoscopic VFX shots. The human interaction felt natural by all reports, and the creative feedback was as fast and effective as being in the same room, despite the 400 miles of physical separation.

Remote desktop control systems allowed collaborators at both sites to interactively start and stop the VFX playback system, as well as to visually annotate shots in such a way that people in both locations could see the annotation as it was drawn. The remote collaboration technology allowed
users to work normally, requiring no additional “training” or “learning” by the creative artists and operators doing the actual collaborative work.

“We are very pleased to work with Skywalker Sound to help pioneer this new approach to networked remote collaboration for digital cinema post-production using our JPEG 2000 streaming platform,” said Hitoshi Takanashi, Business Unit Head, Networks Systems Business Headquarters, NTT Advanced Technology. “We believe our very high quality media-over-IP gateways, combined with the global networks provided by international carriers like NTT Com, can enable new workflows that save time and shrink distance for digital movie-makers around the world.

About Skywalker Sound
Skywalker Sound, A Lucasfilm Company, is located in the serene rolling hills of Marin County, California, forty minutes north of San Francisco. Occupying the 155,000 square foot Technical Building at Skywalker Ranch, Skywalker Sound was built by a filmmaker for filmmakers, and is one of the largest, most versatile full-service post-production facilities in the world. For further information about Skywalker Sound, please contact: Carrie Perry

About NTT-AT:
NTT Advanced Technology Corporation (NTT-AT), based in Tokyo, Japan is a subsidiary of Nippon Telegraph and Telephone Corporation (NTT), the largest telecommunication company in Japan.

See it in action at NAB 2011, booth SU8506.