

Lewis and Clark Expedition Reenactment is Broadcast to Thousands of Students Across the Country via Tachyon Satellite Connections

“Lewis and Clark Then and Now” proves the reliability of portable broadband satellite for remote connectivity.

Project sponsored by the School District of Clayton, Missouri, and the Discovery Expedition of St. Charles, with support from the National Park Service, Apple Learning Interchange and American Distance Education Consortium.

The Challenge

In 1803, President Thomas Jefferson gave Meriwether Lewis and William Clark a mission to explore the Missouri River and its tributaries in search of a water route to the Pacific Ocean. Now, 200 years later, Lewis and Clark are traversing the United States again. However, this time, their adventures are being broadcast to thousands of students across the U.S. via a broadband satellite connection provided by Tachyon Networks Incorporated (“Tachyon”).

To rediscover and promote the bicentennial of Lewis and Clark’s expedition of 1803-1806, a nonprofit organization dedicated to rediscovering the Lewis and Clark legacy, the Discovery Expedition of St. Charles (www.lewisandclark.net), has undertaken an official reenactment of the waterway portion of Lewis and Clark’s journey east of the Rocky Mountains. Broadcasting the reenactments began in the fall of 2003 and will continue through the spring of 2004.

The challenge came when the reenactment team of historians, educators, technicians and actors explored remote locations such as Cahokia Mounds, Illinois, and New Haven, Missouri, where Lewis and Clark had journeyed before. With slow landline communication networks available through local libraries, or no communication networks available at all, the team needed another solution to connect the expedition to their audience of more than 26,000 students across the country. What they needed was a reliable, transportable means of broadcast and Internet data communications from any remote location.

The Solution

With the assistance of Tachyon, the reenactment is happening smoothly. On the trail, project technical director Jim Sturm travels by truck with the project’s Transportable Satellite Internet System (TSIS) in tow. The system, developed by Bob Dixon at Ohio State University, is equipped with a Tachyon Quick Deploy transportable unit on board. Before each weekly broadcast, Sturm activates the unit and sets up the studio’s communications link within 30 minutes. At uplink speeds of 512Mbps and a 1.5Mbps downlink connection, the Tachyon service provides the Lewis and Clark crew the opportunity to broadcast high-quality audio/video reenactments of Lewis and Clark’s

journey from the launch of their keelboat at Elizabeth, Pennsylvania, to their subsequent historical and cultural journeys along the Missouri River.

During the course of the reenactment, the satellite's functionality has been challenged to work in extreme weather conditions. During summer temperatures of more than 100° Fahrenheit and winter temperatures below the freezing point, the reliability and durability of the Tachyon satellite has allowed the broadcast team to remain connected. Even with icicles on the unit last winter, the team had solid line speed via Tachyon for their weekly broadcasts around the country.

During the first semester of broadcasts in the fall of 2003, students and teachers from across the country viewed 26 distance-learning broadcasts. For the full year-long program, viewing options range from 20 minute "Live with Lewis" Webcasts emphasizing the reenactments from the trail, to longer 60-75 minute interactive videoconferences that allow live participation from several schools and the added ability to participate via the Internet. The longer broadcasts focus on a varied curriculum – from history and science to math and music – and are all focused on "discoveries" made by Lewis and Clark during their journey two hundred years ago.



The project, *"Lewis and Clark Then and Now: Linking the Trail to America's Students"* (www.ali.apple.com/lewisandclark) is a joint initiative of the School District of Clayton, Missouri; the Discovery Expedition of St. Charles; the National Park Service; the Apple Learning Interchange (ALI); the American Distance Education Consortium (ADEC); and Tachyon. Tachyon provides technical support via the weekly satellite broadcasts, while staff from the School District of Clayton, Missouri, guide the project's educational

initiatives. The National Park Service offers funding through its Challenge Cost Share Grant Program, and ADEC offers technical and financial support for the project.

Apple Learning Interchange (ALI) became a partner to the project to handle distribution to schools. With ALI's involvement, the weekly broadcasts are distributed to more than 2,000 schools around the country. Leveraging Tachyon's satellite broadband network, ALI distributes the broadcasts to kids in grades 5 through 10, with as many as five schools participating live in each videoconference. The participatory nature of the project offers kids an interactive experience that keeps them interested in learning. Thanks to the high-speed connectivity provided by Tachyon and ADEC, the streaming

video to ALI has run smoothly. Video feeds are able to run at four times the bandwidth of the Webcasts.

Moving Forward

The spring broadcast schedule is currently full, with broadcasts beginning on January 29, 2004 from Camp DuBois at Wood River, Illinois, site of Lewis and Clark's winter camp. Spring broadcasts will come from the St. Louis area until May 21 when the reenactors put their replica boats into the Missouri River and continue upstream to Mandan, North Dakota. Broadcasts will continue as the re-enactors travel on.

The School District of Clayton and the Discovery Expedition are in the process of renewing their one-year funding from the National Park Service. The group hopes to continue its programs to "hook" students on this new approach to distance learning and engage them in more interactive learning experiences.

Among the hundreds of projects ADEC has supported, the Lewis and Clark broadcasts have been some of the most visible. It's also been educationally sound. ADEC cites this project as a great example of collaboration in network communications and is looking forward to seeing the project move forward.

Tachyon will continue to help the project broadcast direct "from the trail." And according to the project's technical director Jim Sturm, "The most reliable piece of all this has been the satellite connection. During all of our setups we have had cameras, VCRs and computers fail, but never did we fail to get a connection with the TSIS. It has become our most reliable technology."