

Customer

Mystic Aquarium & Institute for Exploration

Application

Transporting High Quality Video Coast to Coast for Education and Research

VBrick Equipment

VBrick 4300 (dual MPEG-2 encoders) and VBrick 5300 (dual MPEG-2 decoders)

Networks Employed

Switch Ethernet (LAN), Wireless RF and Internet2 (WAN)

THE CHALLENGE

Dr. Robert Ballard, the famed scientist and explorer who discovered the Titanic, conceived this innovative project. "Nearly ten years ago I envisioned creating an opportunity for people to go on their own explorations using the same tools that we use for deep sea research," said Dr. Ballard, founder and president of the Institute for Exploration and National Geographic Explorer in Residence. At the National Marine Sanctuary in Monterey Bay a submersible with cameras films live marine life such as sea lions and Bat Stars. The challenge was to take the feed from up to 3 underwater and 2 surface cameras and transport it to Mystic, Connecticut for display on a large video screen at the Mystic Aquarium & Institute for Exploration interactive theater. The video had to be of DVD quality or higher and the latency low enough for visitors to maneuver the cameras and submersible with joysticks while watching the video.



THE SOLUTION

With the assistance of VBrick, the University of California, the University of Connecticut, and the Internet2, Mystic Aquarium & Institute for Exploration was able to accomplish the impossible. In Monterey, the camera feeds from the submersible and surface cameras are fed into VBrick 4300 dual MPEG-2 encoders. The VBrick 4300's then convert the analog video to compressed digital video at an average encoding rate of 6 Mbps. Subsequently, the MPEG-2 stream is placed on a switched Ethernet network and shot over a high-speed wireless microwave link from Monterey to the University of California in Santa Cruz (approximately 27 miles).

The University of California Santa Cruz has a fiber optic connection to Internet2, a high-speed backbone that provides nationwide high-performance networking capabilities to more than 200 universities and colleges. The video streams traverse the I2 network as IP packets and are terminated at the University of Connecticut. A fiber optic link then transports the streams from UCONN to Mystic Aquarium where they are deposited on the local switch Ethernet network. VBrick 5300's then decode the video streams and display them on a large video screen for visitors to view. Special consoles in the theater allow the visitors to pan, tilt and zoom the underwater and surface cameras in real-time.

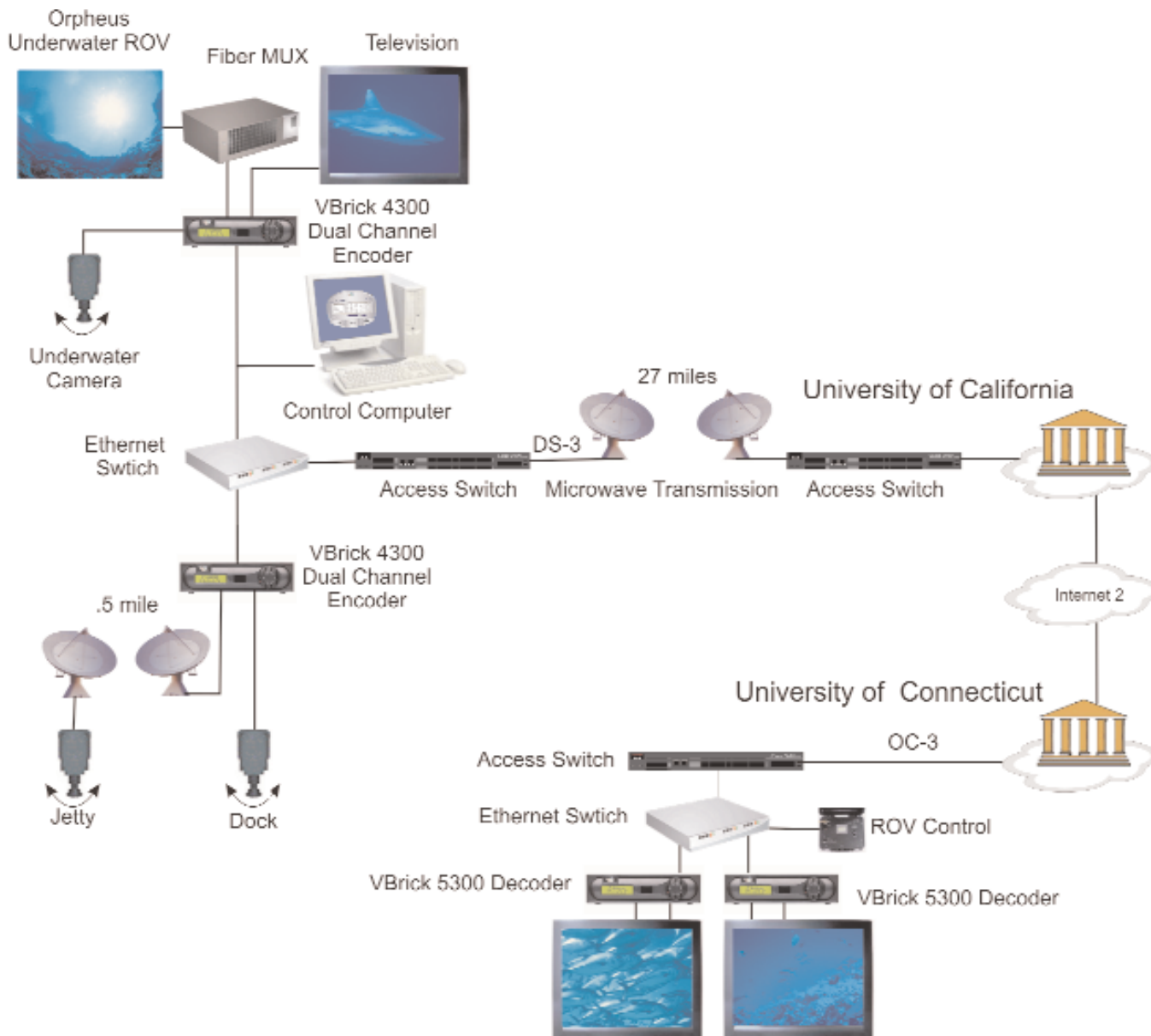
THE BENEFIT

Mystic Aquarium & Institute for Exploration has increased the number of visitors to its facility due to the new project and opened the National Marine Sanctuaries for viewing by the public. The live video and interactive nature of the theater allows children and adults to feel like they are part of an underwater research team and enhances their educational experience. The project has also benefited the Internet2 community by allowing various universities and colleges to view the live video on PCs as it's being displayed at the theater in Mystic.



VBrick network appliances are low cost, high quality audio and video encoders/decoders. VBricks enable the transmission and delivery of true DVD quality video and audio signals over standard switched Ethernet (IP), ATM, or wireless networks. VBricks are fully MPEG compliant, and support both NTSC and PAL video and stereo audio via standard composite or S-video connectors. VBricks provide true entertainment quality video – while only using minimum network bandwidth.

Monterey Bay Marine Sanctuary Monterey, California



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