ZyGoCasting™
Streaming Video for the Missile Defense Agency

The ability to monitor each of the video cameras tracking test shots for the US Government's Missile Defense Agency (MDA) simultaneously and from multiple remote locations is critical to on-going research and development. In order to accomplish this in an efficient and cost-effective manner sights turned to **ZyGo**Digital and its expertise with quality video compression and streaming technologies. The **ZyGo**Casting solution delivered to MDA is a cohesive integration of several of the company's products and technologies that allow for real-time compression and broadcast streaming of multiple incoming video feeds for remote monitoring.
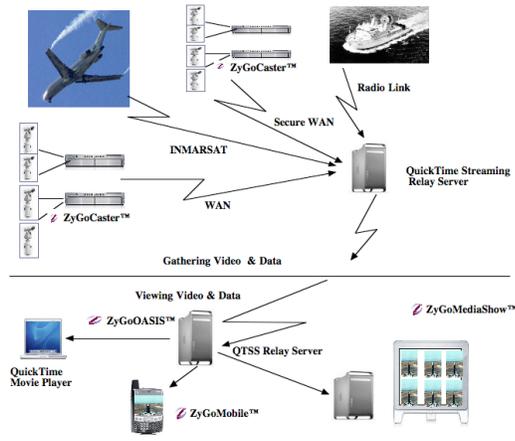
MDA has stacks of Apple xServes with **ZyGo**Caster installed at Kwajalein, Kuaui, Kodiak, White Sands Missile Range, Point Magu, and Vandenberg AFB. These Xserves acquire eight analog video feeds via DV input, two per server, and compress the video in real time. **ZyGo**Caster moves the encoded video to a streaming server for broadcast while also saving an archived copy of the compressed video. Sixteen video feeds are switched into the solution that compresses and broadcasts eight streams. Additional mobile systems are in place on

aircraft using hardened portable computers, and onboard ship using a blade server computer.

ZyGoCaster is installed on all streaming servers, blade server, and laptop systems, allowing multiple video streams to be broadcast simultaneously.
Multiple streams are delivered over a WAN virtual private network from the South Pacific to Colorado Springs, and relayed to Huntsville, Alabama and Washington, DC.
Each video feed is streamed at approximately 100Kbps and 15fps (frames per second) with an aspect ratio of 320x240. **ZyGo**Video supports the low data rate needed while embedding additional data in XML format into each stream. The XML data can be viewed at the receiving end to show time code and camera information such as number, location, etc. **ZyGo**Audio is used to maintain low bandwidth use (~ 28kbps) while providing exceptional sound quality.
The streams are received at a control room facility that is typical of what one would find in a broadcast operation. It is configured with multiple 60" plasma displays on either side of either a Dual high resolution projector, or video cube that provides a 28-foot viewing area.
ZyGoMediaShow is utilized for monitoring multiple video streams concurrently on one of the 60" plasma displays. Each stream is doubled in size to 640x480 and six of them are displayed at a time. Operations personnel using a touch screen panel are able to switch between the streams being viewed on the plasma displays as well as select the active feed that is projected by the projector or video cube system.

Reflecting servers are deployed at several sites running the QuickTime Darwin Streaming Server providing capacity for additional personnel to monitor incoming video for each missile test from their PC or laptop. This allows the solution to balance the load of users and provide stable streams for an increasing audience of personnel monitoring test activity.