

## Video Server for Low Bandwidth Channel

### Concept and Capabilities

There is a recurring need to retrieve video from a variety of remote observation platforms/vehicles. At the present time (and for the foreseeable future) cameras produce far more data than can be retrieved over the available data links. However, the capacity and size of computer disk drives are now such that they can be used for video recording, even on small vehicles. These advances make practical the approach of deploying video servers directly on a variety of observation vehicles:



The video server concept provides the following capabilities:

- ▶ Record all data from all cameras at maximum resolution using lossless compression
- ▶ Transmit selected portions of video in real time (limited by capability of data link)
- ▶ Interactive random access to previously recorded video
- ▶ Instant replay capability (using the same or alternate camera)
- ▶ Near real time review of events at max resolution
- ▶ At end-of-mission, disks can be rapidly copied using a hard-wire link, or unplugged for secure archival

**For further information contact:**

Jeff Goldfinger, Director, UAV Solutions • [jgoldfinger@brandes-asscoc.com](mailto:jgoldfinger@brandes-asscoc.com)  
Brandes Associates Inc. • PO Box 1238 • Fallon, NV 89407 • 775-428-6788

## Implementation

A simple yet effective implementation for the video server would have the following characteristics:

- ▶ Major key components utilize existing (COTS) open-source software
- ▶ Uses standard network protocols, such as TCP, HTTP, and SSL
- ▶ Server is simple and stateless, merely serving files, with one or more files for each video frame
- ▶ Uses a new high-speed progressive lossless video codec (approximation = truncation); all truncation is an optimal compression of the original frame!
- ▶ Real-time performance for up to 2 megapixel images
- ▶ Video stream can be interrupted at any moment and reversed
- ▶ Instant replay at various speed
- ▶ Re-broadcasting services with full set of features are available from the ground station

