

# Boundless Security Systems, Inc.

*the communications bandwidth experts*

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## Ultra Low Bandwidth, *Boundless Security System™* Enables HQ and Mobile Crews to Remotely View Live and Recorded Video from Workers' Helmets, and PTZ Cameras on Oil and Gas Rigs

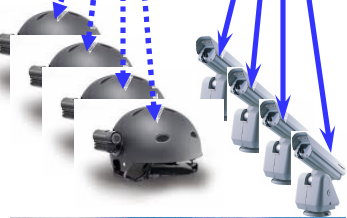
Satellite modem



**Multi-Stream Video Server**



WiFi



Many different digital video streams per camera and recording internal to **Multi-Stream Video Server** avoid heavy continuous traffic on satellite networks. Live and recorded video traffic is only on demand. A 256 Kbps uplink can carry 4 live QVGA video streams at 5 fps/camera. Recorded video from only 5 seconds ago can be quickly viewed remotely.

Boundless' ultra low bandwidth, many-function, **Multi-Stream Video Server** provides a **video base station** on each oil rig. It digitizes four CCTV cameras, (opt) decodes video from four wireless helmet IP-cameras, forms many different video streams simultaneously for every camera, MPEG-4 compresses, internally records video with better quality than can be sent live, and communicates live and recorded video on demand. Boundless' **Broadcast Media Server** can be included within the **Multi-Stream Video Server** to provide local viewing in a browser by workers on the rig.

A wireless IP-camera on a rig worker's helmet can give live video closeups of job sites to HQ and local crews. Four helmet cameras can be supported by each **Multi-Stream Video Server with Transcode Option**. High bandwidth IP-video is decoded then many-stream encoded to provide 100:1 range of bandwidths. Multiple **Multi-Stream Video Servers** can provide more cameras. A panic button on the helmet can flag video and summon help.

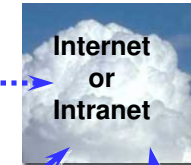
Three to eight simultaneous video streams per camera, with different resolutions, frame rates and data rates, optimize images for **situation assessment**, **monitoring** and **investigations**, and for moving and stationary cameras.

Three resolutions, each with multiple data rates, are provided simultaneously for each camera. Video is available remotely both live, bandwidth-permitting, and recorded.

Video streams span more than a 100:1 range of data rates.

VGA, QVGA, QQVGA

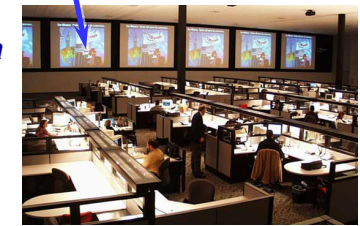
June 22, 2011



*Core system is in use with Hughes VSAT with two hops*



Boundless' cloud-based, **Transcode Broadcast Media Server** converts live and recorded video into a format for viewing in a browser by many distant viewers at once with only a single load on the uplink, implements Boundless' opt. **Rapid Notification System**, and provides an opt. virtual private network for Boundless' **Multi-Stream Video Servers** behind firewalls.



Distant Command Centers use web browsers or Boundless' **Control Panel** client live and recorded viewing, and motion search software on PC's. Dispatchers can push instant live video messages to mobile crews when rig workers need assistance.



Mobile crews on rigs can view live or recorded video, and control PTZ cameras, on *iPhone* and *Android* in a web browser. Handhelds do not require any special software. Boundless' **Rapid Alert** messages with live and recorded video, not just snapshots, can be pushed to viewers for fast response. Opt. **Broadcast Media Server** in on-rig **Multi-Stream Video Server** can use centrally managed web pages from distant server but serve video locally, avoiding satellite bandwidth to distant server for video.