



Boundless Security Systems, Inc.

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Ultra Low Bandwidth, *Boundless Security System™* Provides Live, Real-Time Remote Video and Sharp, In-Vehicle Recording

- ★ Real-time, live video from vehicles enables distant, stationary and mobile forces to remotely assess field situations and protect mobile forces in the field
- ★ Continuous internal video recording provides sharp evidence of operations
- ★ Network-neutral, ultra low bandwidth communications enable public WiFi and 3G cellular wireless networks to be used
- ★ Four video inputs enable comprehensive video coverage, typically one wide angle rear camera, one wide angle forward camera, one telephoto forward camera, and one wearable wireless camera
- ★ Ultra low bandwidth remote access to live and recorded video, and remote, in-vehicle motion searching of recorded video are all available simultaneously
- ★ Provides live and recorded video from four CCTV cameras in each vehicle with multiple resolutions, frame rates, data rates and compression parameters simultaneously to meet competing needs for (1) sharp, highest resolution images for investigations, (2) medium resolution monitoring, and (3) situation assessment
- ★ 128 Kbps uplink can provide live images from 4 vehicle cameras simultaneously
- ★ Synchronized, fleet-wide, Internet-based date & time stamping of recorded video
- ★ Uses dynamic IP addresses
- ★ Remote viewing can be done while vehicles are in motion; broken wireless connections are automatically restored
- ★ Sealed with no user-removable parts and rugged, high-capacity hard drive
- ★ Encrypted VPN tunnelling of vehicle video system to Internet assures confidentiality regardless of wireless network used and greatly simplifies IP-configuration of large systems (opt)
- ★ Boundless *Broadcast Server* sends live & recorded video to many users without added burden on wireless networks (opt)
- ★ At off-peak times, Boundless *Archive Server* wirelessly moves recorded video from vehicle to centralized storage (opt)
- ★ Boundless *Transcode Server* converts Boundless' MPEG-4 streams to Windows Media Player format (opt)

CALL NOW FOR A LIVE DEMO

The *Boundless Security System™* enables the force to be with you.

Police Cars, Surveillance Vehicles, Taxis



School Buses, City Buses

Emergency Vehicles, Utility Repair Vehicles



High-Value Delivery Vehicles

Train Cars, Subway Cars



Reconnaissance Vehicles

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Comparison of Mobile Digital Video Surveillance Systems for Use in Patrol Cars

	Boundless Multi-Stream Video Server Subminiature Fanless	Panasonic Toughbook Arbitrator™
Remote Access to Live Video to Protect Officers' Lives	Yes, 128 Kbps uplink can give 4 live cameras simultaneously	No
Remote Access to Recorded Video	Yes, using any IP-based wireless (WiFi, cellular) network	No
Secure Remote Access	Yes, via encrypted VPN tunnel	No remote access in the field
Ultra Low Bandwidth for Remote Wireless Access	Yes, with fleet-wide date and time synchronization	No
Video Inputs	4: typically used for 1 rear-looking camera, 1 forward-looking wide angle camera, 1 forward-looking telephoto camera, 1 camera on officer	1: typically used for forward-looking camera
Recording Resolution	<u>simultaneous</u> 640x480, 320x240 and 160x120; opt. multi-mega pixels (HDTV+)	320x240 (only 25% of resolution of better CCTV cameras)
Live Video Resolution	Same as recorded	None
Internal Video Storage	40 to 120 GB, 2.5" hard drive	4 to 8 GB flash memory
External Video Archiving	Yes, in field or HQ, over any available wireless IP network	Yes, requires removal of storage device
Video Recording Mode	Typically continuous while vehicle is running	Event-activated or by manual control
Usable as Unmanned Live Video Surveillance Vehicle	Yes, programmable motion detection and notification	No

Please see vendors' documents for latest information.




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Protect Police Officers' Lives Using Ultra Low Bandwidth, **Boundless Security System™** for Real-Time, Secure Remote Access to Live and Recorded Video Surveillance in Patrol Cars

 Wireless ISP's Router and DHCP Server. Boundless' **Multi-Stream Video Server** creates an auto-configuring, encrypted VPN tunnel that avoids network IP-setup. Remote access is restricted to a White List for Cyber Security.

Distributed recording in **Multi-Stream Video Servers** avoids heavy continuous network traffic. Live and recorded video traffic is only on demand. Remote archiving of recorded video is done during offpeak periods, or at HQ, avoiding burdening a busy wireless network.

System can operate continuously when the vehicle is running, avoiding a cumbersome operator console.

Boundless' ultra low bandwidth, multi-function, **Multi-Stream Video Server Subminiature** provides a **video base station** in each vehicle. It provides *continuous* video digitizing for four cameras, MPEG-4 compression, multiple different video streams per camera, internal recording, post-recording searching with new motion values, and communication of live and recorded video.

Boundless' distributed **Storage Operating System™** provides vast storage capacity and the best features of both distributed (DVR) and centralized (NVR) mass-storage. Its **Intelligent Retention™** prunes recorded video in a forensically-defendable manner and greatly reduces the amount of video that must be archived, enabling remote archiving to be done wirelessly during only offpeak periods.

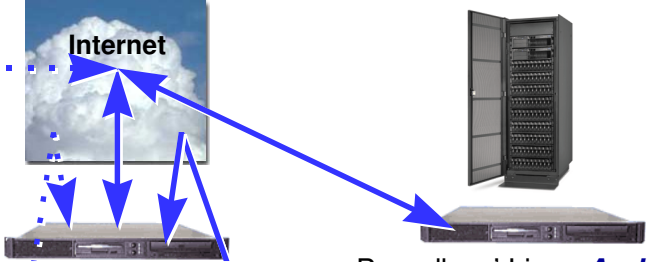
 Third-party Wireless Client (WiFi, EVDO..)



9VGA (opt), VGA, QVGA, QQVGA

One to four, third-party CCTV cameras and/or opt. multi-mega-pixel, HDTV+ resolution, digital cameras on vehicle. Opt. analog wireless camera on officer gives remote live closeup of subject pulled over.

A mere 128 Kbps uplink can carry 4 live video streams at once from a stationary vehicle. Multiple simultaneous video streams per camera, with different resolutions, frame rates and data rates, optimize video images for situation assessment, monitoring and investigations, and for moving and stationary vehicles. Three resolutions are provided simultaneously for each Standard Definition CCTV camera; four for each opt. HDTV+, digital camera.



Boundless' Linux **Broadcast Server** on Internet backbone resolves addresses and isolates users from **Multi-Stream Video Servers**, ensuring Cyber security and avoiding overloading wireless connections to mobile **Multi-Stream Video Servers**

Boundless' Linux **Archive Server** with Network Attached Storage obtains recorded video from **Multi-Stream Video Servers** at times when use of the wireless network is low. Boundless' **Storage Operating System™** virtualizes vast amounts of distributed storage.



Mobile units with Boundless' **Control Panel** client viewing and searching software on Windows PC access **Broadcast Servers** for live video and recent recorded video, and to search recent recorded video.



Command and Control Centers with Boundless' **Control Panel** client viewing and searching software on Windows PC's access **Broadcast Servers** for live video and recent recorded video, and **Archive Servers** for older recorded video.

NOTE:

Some features are optional.
Simpler systems can be built without Boundless' **Broadcast Server** and **Archive Server**.



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- Outdoor video surveillance is a communications problem first, and a video problem second
- Boundless is a communications company with wide, system-level experience
- Boundless uses multiple technologies to provide future-safe, ultra low bandwidth, IP-based, outdoor, mobile, digital video surveillance systems
- Boundless' x86, Linux-based system uses CCTV cameras and optionally USB HDTV-resolution cameras, and is different from others' IP-based systems
- Boundless' ultra low bandwidth streamlines securely sending video from stationary and moving vehicles to the Internet, and from the Internet to mobile users
- Boundless' fully distributed, ***Storage Operating System™***, with in-vehicle recording and off-peak remote archiving, multiple different video streams/camera, and on-demand transmission are essential for 100:1 reduction of bandwidth
- Boundless' bandwidth management enables mobile use of inexpensive, omnipresent, public wireless networks (Wi-Fi, 1xRTT, EV-DO, GSM...), instead of expensive, dedicated, high speed, stationary, point-to-point wireless networks
- Boundless can optionally modify certain video streams' compression parameters dynamically to reduce data rates at times of peak wireless WAN traffic
- Boundless greatly simplifies IP-network configuration of large systems
- Boundless' four-camera ***Multi-Stream Video Server Subminiature*** can handle one rear-looking and two forward-looking cameras, and one mobile body-camera