

## POWERFUL AND SCALABLE LIVE IP-BASED VIDEO SWITCHING, ROUTING AND DISTRIBUTION

- ▶ Seamlessly share live video among multiple locations in real time with sub-second latency
- ▶ Switch between live feeds frame-accurately with virtually no delay
- ▶ Use existing TVU transmitters, IP video sources and network infrastructures
- ▶ Accelerate the move to IP-based infrastructures

For broadcasters who need to share live video with a number of locations or stations, seamless distribution can be a challenge, given the cost and scale of the task. Traditionally, broadcasting stations have had to employ additional encoding tools and costly satellite time, unable to fully leverage their existing IP infrastructures.

TVU Grid presents an award-winning, highly cost-effective way to transmit from one location to another with high picture quality and virtually no delay. It is a scalable solution for distributing live and recorded video from different sources to any other Grid-enabled site. It makes it possible for broadcasting stations to transition toward an entirely IP-based infrastructure by using a standard, contested Internet connection to deliver high-quality, low-latency video from one place to many others, resolving the need for traditional proprietary equipment.

From news stations to houses of worship to sports broadcasters, organizations who need to distribute video quickly and reliably to many different locations can count on TVU Grid.



Grid's web-based, easy-to-use interface grants control over all TVU MediaMind servers.

### Workflow

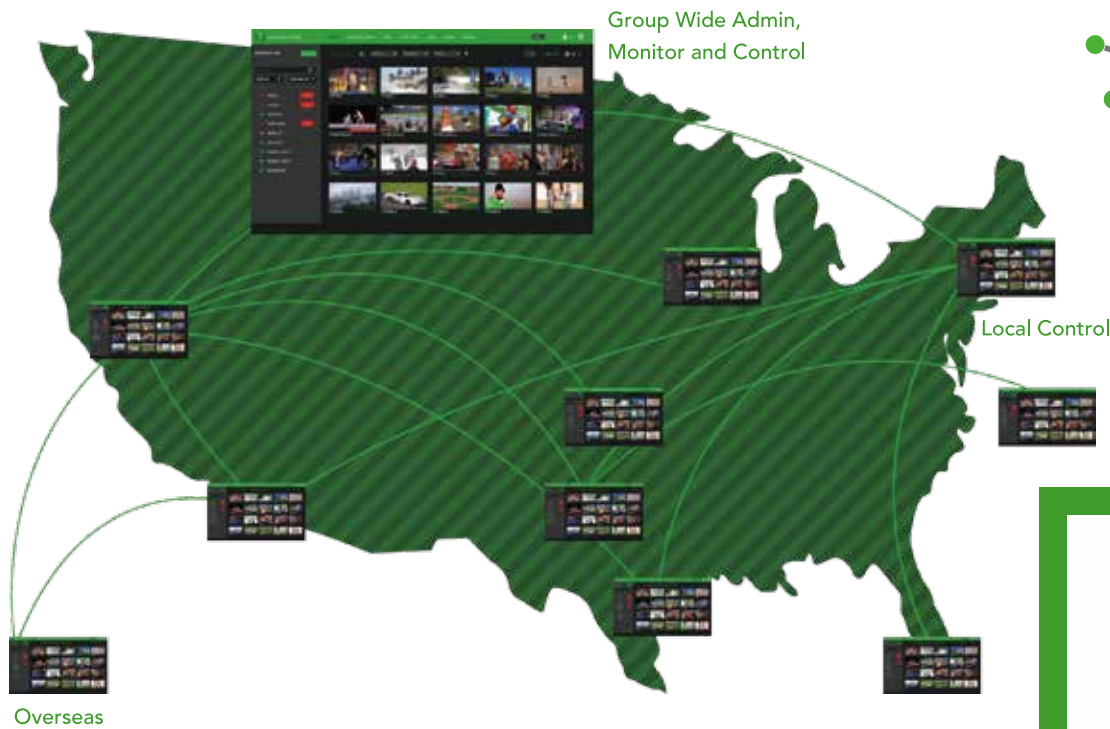
The TVU MediaMind Server VS3500 is the primary hardware component of TVU Grid and the backbone of the TVU Ecosystem. It supports an unlimited number of incoming streams from a range of sources and transmits them to other Grid devices with sub-second latency via IP.

TVU Grid works with a range of other TVU products:

- AP ENPS Integration: Allows alerts to be sent from TVU Grid to the AP news wire; lets ENPS users see location of live stream
- TVU Analytics: Gives information about time usage, statistics, routing information, etc.
- TVU Grid Market (option on TVU Command Center)
- TVU Booking Service: Automated service for scheduling transmission for a set time (option on TVU Command Center)
- TVU MediaMind: Partners with Grid to distribute video content to multiple locations
- TVU Producer: Allows switching between sources, graphic overlay, encoder delay, manual configuration for various CDNs, etc.; runs on existing TVU MediaMind server

### Key Features

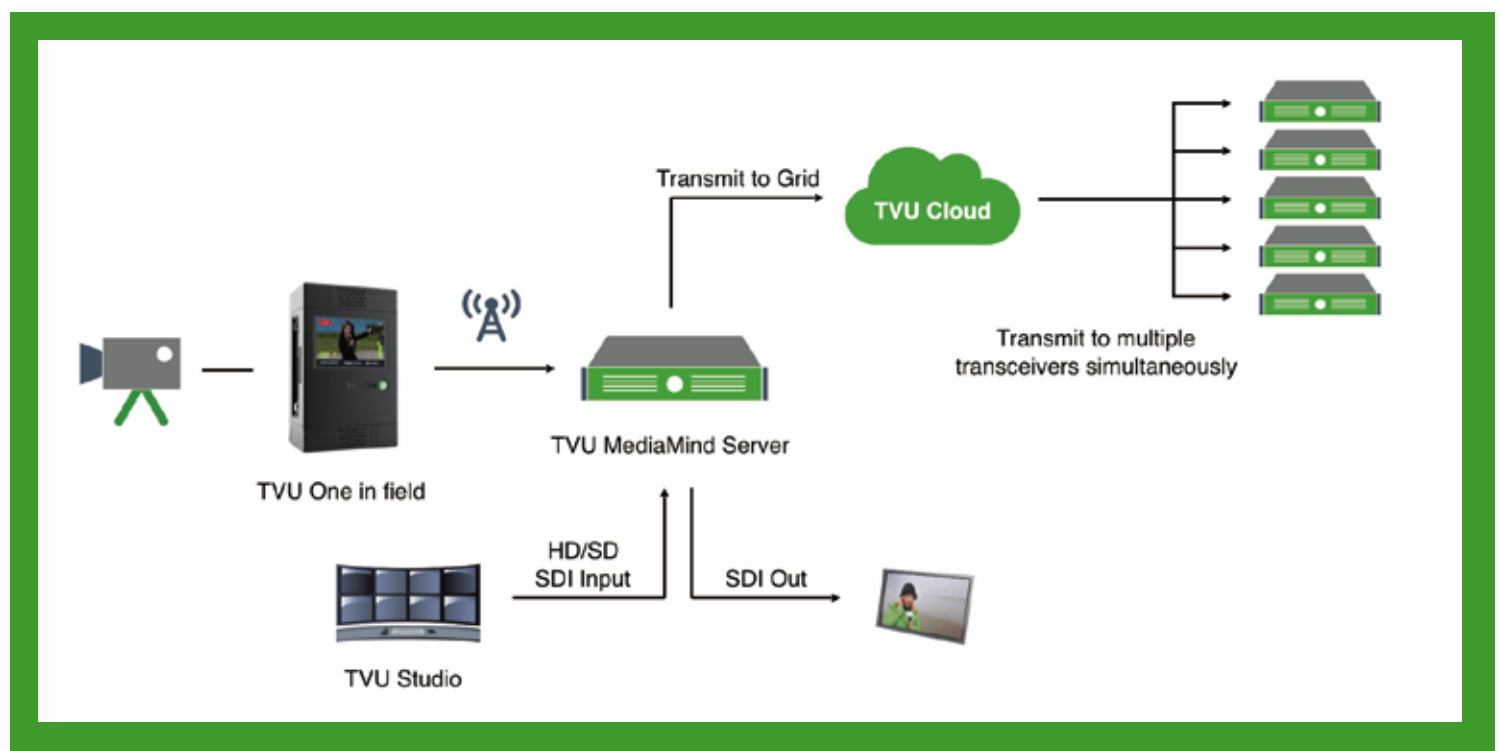
- ▶ Low-cost, limitless scalability -- Any number of additional stations can be connected to the Grid without the need to increase bandwidth requirements at each individual station.
- ▶ Reliably low latency, high quality
- ▶ Point-to-multiple point functionality
- ▶ Frame-accurate, unlimited switching -- TVU Grid allows switching between different IP-based video feeds with no disruption, and without a converter.
- ▶ Simple operation -- TVU Grid's web-based, easy-to-use interface grants control over all TVU MediaMind servers.
- ▶ Supports external video sources and distributes to TV, CDNs and various social media platforms



**TVU Grid Market**, which is found within TVU Command Center, gives users the ability to share and exchange video. Users can request video from other sources as desired, and video owners themselves can authorize transmission to recipients, without the need to go through support. This saves broadcasters a great deal of time and effort. Grid Market automates and speeds up the video transfer process, making it easier than ever before to take video from its source to its destination.

### Use Cases

- 📰 **News** -- TVU Grid saves broadcasters a lot of time and money in the process of distributing video to its affiliate stations and clients, wherever they may be located. Grid enables quick, reliable and easy switching and routing for broadcasting breaking news and high-profile stories.
- 🏈 **Sports** -- Using TVU Grid for sports coverage, whether the action is happening before, during or after the game, means that a team or school can share that content with local broadcasters who might not have been able to get in on the action themselves. The live video can reach a much larger audience with a click of a button, meaning more time in the spotlight for the players.
- 📢 **Broadcast** -- TVU Grid opens up a much wider range of possibilities for when and how stories can be told. When working with time differences, a specific schedule, or a set number of shots, purchasing satellite or fiber for periodic or sporadic broadcast is wasteful and cost-inefficient. Grid is functionally versatile; it works around particular requirements and circumstances, not against them.



## ▶ TVU Grid Technical Specifications\*

Model	VS3500 - MediaMind Server
Form Factor	1RU Rack-Mount Chassis
OS	Linux and Windows
Encoder	H.264/HEVC, 4:2:0 CBR encoding
Bandwidth Requirement Per Site	SD: 2.5Mbps of bandwidth + ~5% overhead for FEC HD: 8Mbps of bandwidth + ~5% overhead for FEC
Transmission FEC	Inverse StatMux Plus (IS+)
Video Resolutions	SD/HD - SDI (1080-50i/59.94i, 720-50p/59.94p, NTSC/PAL)
Network Interface	1 independent 10/100/1000 BASE-T RJ45 Ethernet interfaces, 2 x USB 2.0, 2USB 3.0
Display	HDMI and VGA
USB Ports	2x USB 3.0; 2x USB 2.0
Ethernet	4x 1GigE (WAN and VLAN tunnel)
Power Source	100-240V ~/3.5A 47Hz-63Hz
Dimensions	16.92in (430mm)L x 10.39in (264mm)W x 1.77in (45mm)H
Weight	9.56lbs (4.34 kg)
Operating Temperatures	32F - 89.6F; 0C - 32C
Power Supply	Single



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