

# HD

# Transmission Times

Live Television Since 1979

## Coming Events

**June 13**  
Cotto vs Clottey  
New York, NY

**June 27**  
Latin Fury  
Los Angeles, CA

**June 28**  
BET Awards  
Los Angeles, CA

**June 30- July 5**  
Tiger Woods / AT& T  
National Golf Tournament  
Washington, D.C.

**July 4**  
Capitol Concert  
Washington, D.C.

**July 18**  
Mayweather vs Marquez  
Las Vegas, NV

**September 6**  
MDA Telethon  
Las Vegas, NV

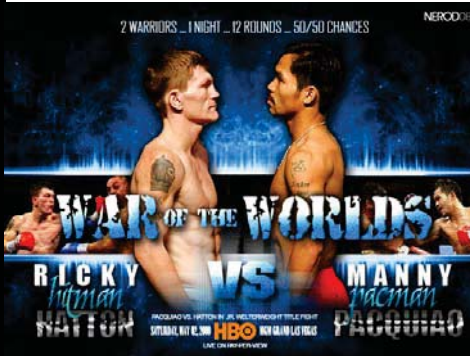
**Ongoing Shows**  
UFC  
WWE  
NASCAR  
Regional MLB  
Regional NFL  
ATP / WTA Tennis  
Real Time with Bill Maher



## In This Issue

- ◆ Pacquiao vs Hatton WORLDWIDE
- ◆ PSSI Delivers the News
- ◆ Award Show Season
- ◆ New York City Marathon
- ◆ Technically Speaking
- ◆ Coming Events

## Strategic & PSSI Combine to Deliver Knockout at Pacquiao-Hatton



On May 2nd, two of the premier boxers in the world, Manny Pacquiao and Ricky Hatton, came together at the MGM in Las Vegas for a highly publicized championship bout. Strategic Television and PSSI Global Services combined to bring this epic clash to an international and U.S. Pay-Per-View audience. Support and transmission services were also provided to broadcasters from the boxers' home countries of England and the Philippines. Strategic Television provided extensive project management for the show, including transmission oversight and communications, with PSSI providing eight trucks and an army of engineers to service the domestic and international producers. PSSI also provided transmission for the media events, weigh-in and HBO 24/7 documentary series produced on the two fighters.

## The Award Goes To Strategic & PSSI



The awards show season was in full swing this year and PSSI and Strategic once again established themselves as the premier provider of transmission services for these global events. Whether managing the full transmission spectrum of fiber, Ku and C-band satellites or bringing in remotes from across the globe, Strategic and PSSI had a presence at all of the major shows including the Oscars, Grammy's, People's Choice, Emmy's, Academy of Country Music Awards, SAG Awards, Spirit Awards, BAFTA, the MTV Video Game awards and BET Awards. Strategic and PSSI provided transmission trucks, fiber encoding, engineering, communications and project management for the media as well as the network and international programming.



## Strategic Shines at the NYC Marathon

Strategic Television has been on hand at the New York City Marathon for over 15 years providing project management supervision for the extensive transmission and communication needs of this iconic running race. In the most recent version of the race, Strategic managed multiple the fiber paths that brought segments from around the race course for insertion into the main program as well as transmitting the event to the network and a worldwide audience. Strategic also provided telephone and Internet communications for various transmission and production locations.



Live in **HD** From Coast-to-Coast



## *It's a Virtual World...*

As a provider of aggregated SD and HD transmission services, the clients of PSSI Global Services and Strategic Television depend on us to provide complex, technologically advanced solutions for hands-on, real world applications. Our selection of facilities is based on a variety of factors, including quality, cost and transparency.

When looking at the issue of quality and cost, we are always seeking the best possible service and equipment at the best value. With the almost daily changes in technology we must be in a constant state of negotiation with various providers to insure we meet this goal. As technology changes, we must keep ourselves informed of the best options so we can effectively steer our clients through this shifting transmission environment.

Transparency and communication faces similar but less clear-cut issues from changes in transmission formats. Until recently, transparency has been a manageable issue with all providers along the transmission chain participating to keep each other informed – which allowed us to keep our client informed. A normal transmission scenario might include Uplink One transmitting to a space segment on Satellite X for downlink at Teleport One. A more complex routing might be Uplink One to Satellite X with a turnaround at Teleport One to Satellite Y with the signal ultimately downlinked at Teleport Two. With the advent of optical fiber you simply substituted optical fiber in for one or more space segment and the flow is the same.

Keeping in contact along this chain of transmission has been relatively easy with email, high speed international calling, cell phones, good quality venue Internet and phones. A single engineer, for smaller jobs, or a project manager for multiple pathways could test and troubleshoot by connecting the dots and checking in along the path with each service provider. Today's transmission configuration is not quite as straightforward and requires a much higher level of communication, transparency and management. The difference today is the growing use of a virtual transmission infrastructure.

Taking our straight-forward scenario above and changing it into a virtual scenario might look like this. Uplink One transmits on a space segment via Satellite X to Teleport One. Teleport One turns the signal around to Teleport Two via fiber which transmits to Satellite Y for an ultimate downlink by Teleport Three. The fiber connectivity turns Teleport One and Teleport Two into a single virtual teleport. The web of this infrastructure can extend across the United States or even the world. A signal can be downlinked in Georgia, sent via optical fiber to California and then via satellite to Asia. There are international providers whose virtual network extends even further.

In most cases, this virtual format allows greater flexibility and redundancy. It becomes especially important if key equipment needed to transmit different types of signals is located at different locations. We have had HD signals which needed to be downconverted for an international SD audience. To accommodate this the HD signal was brought down at one teleport and turned via fiber to another that housed the downconversion hardware, but could not take the original signal. The virtual transmission network can ideally accommodate delivery of recorded material, syndication, server stored content, and live events. But, with this greater complexity, the issue becomes one of communication and transparency. Everyone must know where the signal is going in order to manage and troubleshoot. To do so, we insist upon a clear picture of the routing from our providers.

In order to provide maximum transparency and communication of information with our clients we maintain on-site transmission management for all of our major events, and off-site management for the remainder. We generate detailed transmission overviews which clearly define and detail the transmission pathways, timing of the testing and event and the complete routing of the signal. We insist that our vendors maintain this same level of transparency with us. As the virtual web of transmission networks expands on a global basis this knowledge will become even more critical and our demands on our service and equipment providers will be even higher.



## ***PSSI at the Playoffs***

PSSI has had a significant HD presence at both the NHL and NBA Playoffs transmitting coverage around the country for both media and regional network clients. After transmitting regular season games via fiber and satellite, PSSI moved into the playoff season with Ku HD trucks being staged at multiple locations for for the Stanley Cup Playoffs and fiber encoding packages staged for the NBA. The fiber encoding packages are housed in Honda Element vehicles for easy transportation directly to the venues. The packages can also be shipped as stand alone units. A PSSI engineer provides support for the HD encoding. These packages have been used successfully not only in the playoffs but for major Pay-Per-View sporting events, awards and entertainment shows and more. In addition to the network backhaul, PSSI has also provided transmission services for a multi-camera mux transmitted to the web that allows the viewer to see different camera angles of the event. PSSI provided this service during the regular season as well. With professional basketball and hockey winding down their season, PSSI is already



supporting regional network transmissions for baseball and will begin doing the same for professional football in August. Fiber encoding packages will be staged for these events along with uplinks for satellite transmission. PSSI will continue to support national and international coverage of these events, as well.

## ***PSSI Making the News***

With a nationwide fleet of over 25 satellite trucks, PSSI has been serving a broad spectrum of national and international news feeds for decades. From the Heraldo Rivera's live broadcasts

through the O.J. Simpson trials, 9/11 coverage at Ground Zero, Hurricane Katrina and other major news events, PSSI has provided outstanding transmission and production support for the news media across the country. PSSI and Strategic provided major transmission and project management support for the presidential campaigns and conventions and kept right on covering the beginning of the Obama Era with transmission of media coverage of the swearing in and events surrounding Inauguration week.

PSSI has remained a part of media coverage of the presidency including news transmission of President Obama's commencement speech at Notre Dame. PSSI trucks helped cover the fires in Santa Barbara and the regional media coverage of the Kentucky Derby. Whether it's

political news, weather, natural disasters or an event of international magnitude, PSSI will be there.



## ***Strategic Supports the UFC MMA Spectacular***

Mixed-martial-arts is one of the fastest growing spectator sports in the world and UFC is the premier provider of the sport to the world. Strategic Television develops and implements an extensive transmission program for the UFC family of events which includes the Ultimate Fighting Championship Pay-Per-View events, the UFN - Ultimate Fight Night, TUF - The Ultimate Fighter and WEC - World Extreme Cage Fighting. All events with the exception of World Cage Fighting are transmitted to both the domestic audience as well as an extensive world audience. The Strategic transmission plan includes both HD and SD transmissions for the televised broadcast and some shows also include the transmission of an additional four SD web cams covering the team locker rooms and the hallway leading to the arena for the maximum MMA experience for the audience.



# Technically Speaking

## Lip Flap

A viewer sits down in their living room, bedroom or favorite watering hole to catch up on the evening news or watch their favorite sporting event. Suddenly, the picture and audio are out of alignment and the sportscaster or interviewer looks like they've been cast in a badly dubbed film. We've all seen this happen as we're glued to our own television sets and we've experienced the agony of these lip sync errors on the job. Television is a visual medium, but when the sound that travels with the picture arrives at a different time, it's amazing how disruptive it can be for the viewing experience.

This ever increasing problem is the result of the use of more and more digital devices to pass ever more complex signals. Over the past few years, with the onslaught of new and more sophisticated digital production resources, effects and transmission systems, the delay in processing the video signal has increased dramatically. Differences between audio and video that were once only a few milliseconds are now

measured at well over 400 milliseconds when considering MPEG-4 compression. This delay can incur anywhere along the signal path from production, through transmission and finally to the broadcast facility or video tape equipment. Wherever it happens in the process, it has a negative impact on the broadcast.



Reviewing the lip flap and accurately adjusting for any lip sync errors is critical in today's television world, especially in the new HD environment. But when you talk about making adjustments at the millisecond level, the human eye and ear becomes of little use in the process. We've all been victims of attempts to have a handful of people tell if the lip sync is out and if it is, whether the audio is leading the video or the video is leading the audio. The result of these difficulties has been the development of mechanical devices which assist with the lip sync process and reduce the chance for error over the highly fallible "clapping hands" method.



PSSI and Strategic Television are very concerned about delivering a signal to the client's facilities within normal lip sync range, and so we now rely on a system that was developed to accurately measure lip sync delays down to the millisecond. This system is called the Pro-Bel VALID8. This Video/Audio Lip-Sync and Identification system combines an HD/SD pattern generator with an HD/SD pattern reader. The generator incorporates perfectly timed visual events and synchronized audio clicks that the reader can interpret to give the user an exact measurement of any audio synchronization errors. The use of the VALID8 system enables us to accurately advance or delay the audio compared to the video so a perfectly timed signal can be delivered to the end user.

### Event Transmission Management

**25+ C-band & Ku Satellite Uplink Trucks**

**18+ HD Encoder Packages**

**C & Ku-Band Flyaway Package**

**Los Angeles Insert Studio**

**Las Vegas Teleport**

**Fiber Encoding and Monitoring Packages**

**skIP Broadband Satellite System**

**Webcasting**

PSSI and Strategic Television maintain VALID8 systems on standby for use by clients in news, entertainment, sports and even corporate events - wherever digital processing can negatively impact a broadcast. By using this system we can increase the speed and accuracy of audio/video synchronization testing and reduce the risk that the viewers' experience will be ruined by an annoying lip flap error.



STRATEGIC  
Television

[www.StrategicTV.com](http://www.StrategicTV.com)

PSSI<sup>2</sup>  
Global Services<sup>1</sup>

[www.PSSIGlobal.com](http://www.PSSIGlobal.com)