Networked Audio in Festival Production

Pro16 System Streamlines Distribution, Mixing

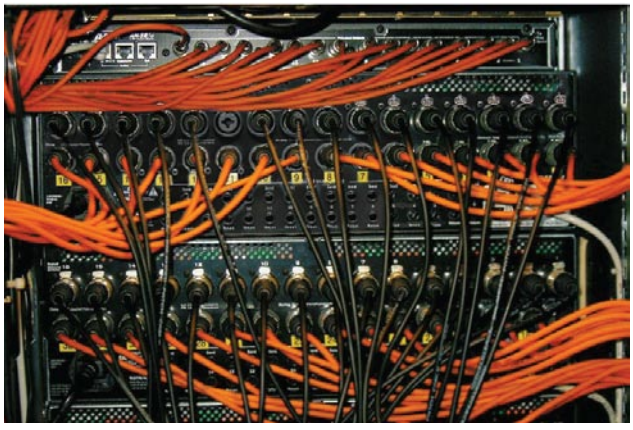
One of the most difficult performance environments for musicians and engineers alike is the music festival, with many different acts sharing the same stage or even multiple concert venues running simultaneously. Performers are squeezed into tight schedules, with only brief windows available for setup and soundcheck. And engineers are expected to produce great sound for a wide range of acts, while also meeting the varied needs of the artists and often providing additional audio feeds for remote locations such as recording or broadcast facilities. With the pressures of time and logistics, simple and efficient solutions are particularly valuable in a festival. Aviom's Pro16® Monitor Mixing and Audio Networking solutions offer an easy and cost-effective way to streamline setup, increase flexibility and service, and improve performance quality.

MOVING A LOT OF AUDIO TO A LOT OF PLACES

One of the principal challenges in a festival is getting all the audio where it needs to go. Traditional multi-channel analog snakes are bulky and expensive, and as audio systems have grown in size and complexity, the limitations of point-to-point distribution with analog snakes have become more problematic.

Aviom's A-Net®, the proprietary distribution technology, allows up to 64 uncompressed channels to be transported digitally (48kHz, 24 bits) on an single inexpensive standard Category-5e cable up to 500'/150m. Signal flow is bidirectional in blocks of 16 channels, so standard snake configurations up to 64x0, 48x16, and 32x32 are all supported on a single cable. Unlike a snake, however, once the channels are in the Pro16 system, they can be copied and redistributed as often as necessary, without potentially noisy transformers and splitters.

In a festival setting, there are several benefits to this. First, the main stage-to-FOH snake can be replaced with a single Cat-5e cable carrying both inputs and audio returns. Even 500' of Cat-5e is relatively compact and is both easy to hide and easy to transport, though some sound companies have gone so far as to view the cable as disposable, leaving it behind at the end of the shows.



The stage-rack **rear panel of a 48x16 A-Net Pro16 snake. The orange cables connected to the bottom modules use the analog splits on the AN-16/i-M to run to a monitor console.**

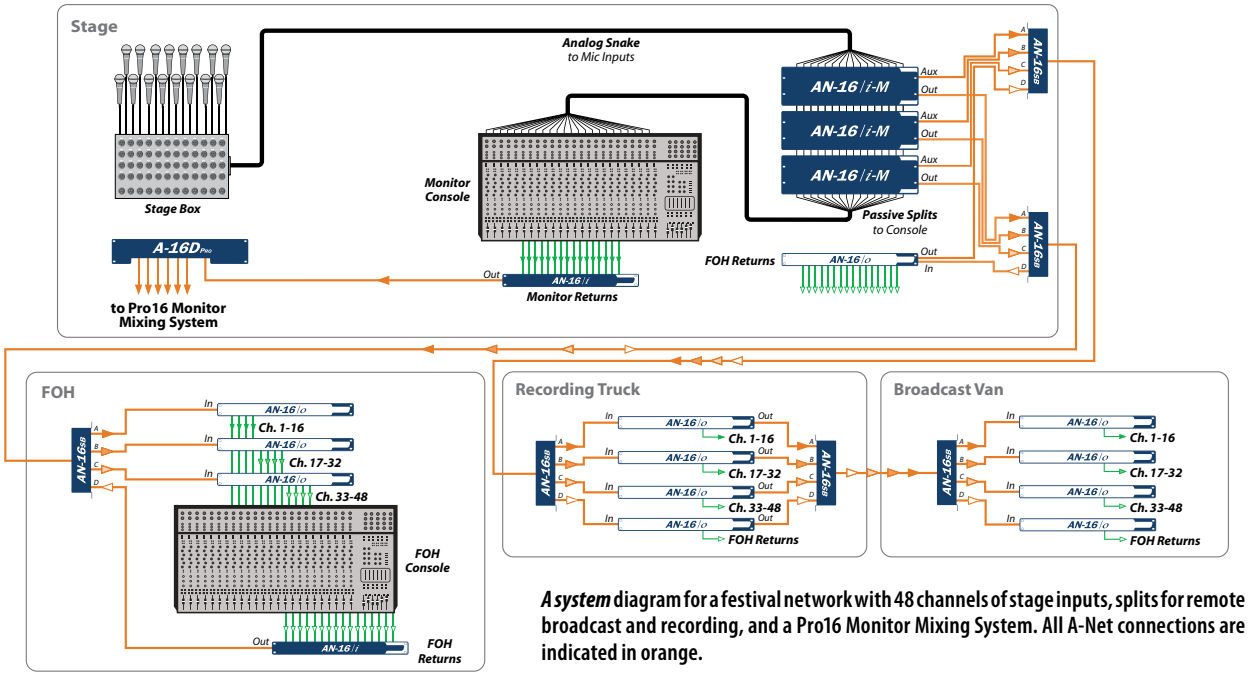
Thirty-two channels **of line-level input on stage (left), using existing mic preamps, and a 24-channel split to remote recording (right).**

Secondly, providing audio to recording, broadcast, and other remote locations is straightforward with a Pro16 system. Copies of both stage inputs and returns (or specially prepared aux mixes) can be distributed to other facilities simply by running Cat-5e cable to these additional locations. Because the copies are digital, there is no loss or degradation in sound quality, no matter how many times the signal is split. And because the Pro16 network is fully modular, configurations can be changed quickly and inexpensively, without costly and time-consuming rewiring.

Audio input and output to the system are handled by Pro16 input and output modules, and Aviom offers input options for both mic- and line-level analog audio. All modules are rack-mountable, so analog sub-snakes and interconnect cables can be conveniently used to quickly connect microphones, consoles, and other audio devices to the Pro16 network. All Pro16 products are truly plug-and-play, so setup is as simple as connecting and powering up (i.e., no computer-based configuring or complex setup). In a festival, ease of setup, tear-down, and reconfiguration is especially important.

SOUND ON STAGE

One of the other major challenges facing festivals is the on-stage monitors. While everyone agrees that good stage monitors are essential to good performances and that every performer's monitoring needs are unique, there often simply isn't enough time or staff to make multiple custom monitor mixes for each ensemble. Understandably, most festivals end



A system **diagram for a festival network with 48 channels of stage inputs, splits for remote broadcast and recording, and a Pro16 Monitor Mixing System. All A-Net connections are indicated in orange.**

up taking a "one size fits all" approach to at least most of the monitor mixes.

The Pro16 line, however, provides a solution to this. With Aviom's Pro16 Monitor Mixing System, every performer in every ensemble can get a perfect custom monitor mix, without relying on an engineer to set it up and dial it in, and without interfering with any other mixes. The "one size fits all" generic mix becomes merely a starting point from which performers can custom tailor to their preferences, while engineers are free to focus on other tasks—such as the FOH mix.

The heart of the Monitor Mixing System is the Pro16 Personal Mixer. Each performer (or at least each monitor) is given a small digital mixer to customize their mixes with. Every Personal Mixer provides control over volume and pan of 16 channels, which are typically a combination of direct outs, inserts, and auxes from the FOH or monitoring console. All controls on the Personal Mixer are straightforward and intuitive, so performers can create and modify mixes without a lot of instruction or support from engineering staff. With time at a premium and with multiple acts rotating onto the festival stage, ease of use is essential.

A Pro16 Monitor Mixing System can include any number of Personal Mixers, connected in any combination of stars and daisy-chains, and the mixes created in each Personal Mixer are completely independent from every other mix. Each Personal Mixer can output either a stereo or mono mix, and can drive powered monitors, a power amp, wired or wireless IEMs, or headphones.

STREAMLINED SOUNDCHECK

The benefit is that, with performers able to fine-tune their own monitor mixes, engineers can devote their time to other tasks, even as performers end up with more individualized monitor mixes in less time and with less hassle. Particularly as more and more musicians switch from wedges to IEMs, precisely controlled and customized monitor content is increasingly important to a successful production. The amount of engineer time required to produce mixes suitable for IEMs is simply beyond what most festivals can offer. But even in systems with nothing but floor wedges, soundchecks go more smoothly and produce better results when performers can make some of their own adjustments without relying on an engineer.

One effective way to further streamline soundcheck is to use the Preset feature on the Personal Mixer. Each Personal Mixer can save up to 16 independent mix snapshots, which can be used to offer performers a selection of different mixes or to allow performers to save custom mixes they like. This second approach is particularly useful for festivals which soundcheck multiple acts before the show. At the end of check, each performer's mix can be saved in a designated Preset and then instantly recalled at the beginning of the set. Mixes for other performers in other ensembles can be saved in other Presets on the same Personal Mixer.

The goal is not to cut engineers entirely out of the process but rather to allow them to focus their time in the most productive and most specialized ways possible. The Monitor Mixing System offers several ways for engineers to assist performers and, most importantly, to exercise some necessary control over monitor mixes, stage sound levels, and overall sound quality. For complete details on these strategies, refer to the Aviom Application Note entitled "Personal Monitor Mixing with Engineer Control."