

Where to store finished content so that it can be easily retrieved

New deck for production and post

Guest Opinion

By Mark Ostlund, Cache-A

The increasing adoption of high-performance digital cameras that combine the quality of 35mm film and the convenience of pure digital from companies like Panasonic, Sony, Thomson, Arri, Panavision and RED has fueled a dramatic shift in the way creative professionals work. They are achieving impressive efficiencies from end-to-end file based workflows. But when the project is done and the next job is coming in, there is a glaring deficiency that didn't exist in the age of video tape — where to store finished content for future needs in such a way that it can be retrieved easily and with confidence.

Not only is it a case of where to store it when the project is done, but without 'source masters' from the production shoot, it is impossible to go back to the raw footage. In this new file-based workflow, many of these professionals are using hard drives for archival storage, putting them away on a shelf and hoping that they will still work in the future.

However, disks were not designed for shelf storage; they need to be spun up frequently or continuously or they may not spin up at all. On top of that, the software and OS environment that recorded the data may not exist in five to 10 years. High-end facilities can use tiered storage and large robotic libraries toward to same end, but with all of the associated higher IT staffing and maintenance costs. However, the question for the large majority of professionals is how to archive digital content in a way that is safe, easy to retrieve and cost-effective?

Having worked with many leading professionals, we have seen these developments firsthand. The management team at Cache-A learned a lot from our experience at Quantum, where we introduced the A-Series Professional Video Drive to provide a critical layer of data tape storage in a professional video

storage system. This technology won many industry awards over the past four years and has been integrated into digital video acquisition, digital film and post production file-based workflows worldwide.

Now at Cache-A, we have taken that technology well beyond the previous generation by carefully listening to feedback from our key partners and end users. As a result, we have built new, self-contained archive appliances for production and post production based on industry-standard LTO-4 tape that are robust, easy to deploy and that provide access to stored content well into the future without the need for special software. Cache-A's A-Series provides source masters for digital acquisition and project archives for post production by providing networked storage direct to data tape.

And these appliances are not just appropriate for the end of the project when the work is finished and needs to be preserved. They can be dropped into many workflow configurations at any point in the creative process.

This opens up a whole new realm of creative possibilities. Because of the cost of the new acquisition digital media (memory cards and hard disk drives), they need to be returned back out into the field to keep shooting. This has led to the evolution of new approaches to production archive workflows. Whereas it has traditionally been 'shoot (on video tape or film), edit, and then archive,' with our archive appliances it has become 'shoot (on flash or disk), archive (for source master creation), edit, archive (project and finished piece)'. With the "shoot, archive, edit, archive" workflow, the production team is assured that the raw content and the project are protected and available for access now and for repurposing in the future.

In addition, because the raw footage is now stored on cost-effective data tape by the Cache-A archive appliance, the expensive digital camera media can be reused over and over again rather than stored on a shelf. Also, storage on data tape



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satisfies insurance bonding requirements that stipulate minimum footage be kept on a camera for a high-end production. As an added bonus, dual drive versions of the archive appliance can automatically and simultaneously create two backup copies of the material, adding another layer of safety and also satisfying another insurance bonding requirement for dual copies.

New physical interchange

In a larger sense, the archive appliance has become the new deck, replacing the VTR as a way to create a medium for content preservation and to provide a means for physical interchange. Going beyond the VTR, it eliminates the traditional concerns that professionals have always had with video tape, such that it doesn't include any of the metadata about the shoot (now embedded in digital media) and that it is limited to realtime streaming. Easy to use and deploy with plug and play integration into Ethernet networks, the Cache-A archive appliance mounts as a volume to Windows, Mac OS and Unix workstations, making it look like a hard drive.

Also, with four new interfaces — PCI ExpressCard, Firewire, eSATA and USB — many new media types can now be plugged directly into the appliance, enabling direct high-speed file transfers from almost any source. The A-Series LTO-4 drives hold 800GB per cartridge native, equivalent to more than 60 hours of 25Mbps standard definition (SD) or more than 15 hours of 100Mbps high definition (HD) content.

Each individual editor now has direct, simultaneous searchable access to all of this metadata throughout the entire creative process. During production, key metadata is stored in a file system directory both on the appliance and on each tape. The combination of the directory and the text-based archive makes it simple for editors to find a specific file on the tape during programme production or to locate content captured by any of the cameras on any tape — without the need for special software. Editors now have quick and easy drag-and-drop access to transfer and exchange files as well as video tape-like access to sub-clips by timecode.

Every tape cartridge contains a directory of its own content, making it a self-contained asset repository that can be shipped around the world and stored for long periods of time. The drives also provide file transfers over Gigabit Ethernet at estimated data rates greater than 50MBps, allowing much faster than realtime access to most content types. A secure, future-proof solution, the data on the tape is directly accessible without any special software, enabling it to be interchanged regardless of the application or software environment that recorded it; the new A-Series systems write in the standard 'Gnu TAR' format, which allows any tape to be read on any LTO-4 drive.

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