



G-Technology™

SHED Trusts on G-Technology Data Storage to Make Hit Movies

Making movies is a sublime art with many steps and critical behind-the-scenes players. SHED LA is one of these key, unsung superheroes, providing finishing services for major motion pictures such as *The Hateful 8* and *Suicide Squad*™ during production and post-production.

During production SHED creates the digital dailies (the raw visual and audio materials that were generated during each day's shooting) so that the director and editors can review them each evening. This allows creative decision makers to ensure the footage is acceptable, has achieved the artistic experience desired, and is free of technical problems. If any scenes need to be reshot, it's obviously best to do it immediately while sets and actors are still in place and available.

SHED's finishing services include conforming, color timing, and managing deliverables — all of which have great influence on the film's consumer appeal and commercial success. Not surprisingly, this entire refinement process hinges on copious amounts of fast, dependable storage.

Movies Require Vast Amounts of Data Storage

Most modern cameras such as the ARRI® Alexa 65 acquire raw digital images using a single image sensor overlaid with a color filter array (CFA). This technology requires data to be demosaiced

G|RACK™ 12





during the processing workflow in order to reconstruct a full-color image. The process creates a usable, viewable format but at the expense of requiring a lot of storage capacity and bandwidth.

When working on one particular project, SHED needed to provide movie deliverables in a handful of different file formats, each with different requirements. For example, SHED did the finishing, which included mono and 3D color timing, as well as home video finishing, web finishing, and the mastering. Considering that the finished movie alone was 2.5TB (a fairly modest number due to only needing a 2K finish), SHED had to store 60TB of raw material, plus the special effects data, plus 25TB worth of deliverables data. This one project required over 125TB worth of storage.

Fast Storage Performance Delivers Competitive Edge

SHED works on many projects for many clients simultaneously, and storage performance is a major issue due to the large amounts of data they handle. To meet customer performance requirements, SHED uses a network-attached storage (NAS) infrastructure and G-Technology's G-RACK™ 12 with 120TB of enterprise-grade storage, plus another 96TB in a G-RACK 12 EXP expansion chassis tethered to the main NAS. SHED also employs a hybrid network that can leverage the G-RACK 12's four 10-gigabit copper Ethernet ports augmented with G-Technology's SFP+ fiber network card. SHED can also bind multiple G-RACK 12 network ports and receive data path redundancy for large, highly demanding projects.

"The G-RACK 12 is the ideal solution for us...the faster we can get data moved, the faster we can process it and turn it around for our clients."

Toby Gallo

"The G-RACK 12 is the ideal solution for us because it allows us to saturate the data rates for our data pipes," says SHED chief engineer Toby Gallo. "That's a massive advantage for us. The faster we can get data moved, the faster we can process it and turn it around for our clients."

Gallo adds, "In our business, there's always a time crunch. There's always a scheduling issue, and all of our clients want their data processed yesterday. It's imperative that we have the ability to obtain raw data, process it, and then deliver it back to our clients as quickly as possible."

With all that available network bandwidth, SHED can achieve some amazing feats. On this particular configuration, the firm can do two dedicated streams of uncompressed, 16-bit, 4K RGB files, which is important in the entertainment industry. The studio has no other solution with such exceptional speed save for its far more costly enterprise SAN, which remains SHED's go-to for higher volumes of uncompressed 4K work. For everything else, the G-RACK 12 proved to be a life-saver.

"Having the G-RACK 12 made a huge difference for us," says Gallo. "We were able to push a lot of data to nearline, where we still had high-performance access, without having to resort to putting the data onto LTO data tape, which would have crushed our efficiency. Our NAS gives us nearly 200TB of online space, but at a fraction of the SAN's \$150,000 price point. We can't afford that for the bulk of our work. When you're generating over 15TB daily and need to balance speed against cost and capacity, the G-RACK solution becomes very enticing."

Additionally, SHED does on-location work across the globe and has started using the G-SPEED® Studio XL attached to sites' Mac® systems, creating an on-the-fly solution able to serve in a NAS-like role. The G-SPEED Studio XL's small footprint makes this solution highly portable and easy to use on-location, then can return for very quick, Thunderbolt™ 2-technology driven ingestion into the G-RACK 12 when needed.



The Two Sides of Experience: Features and Reliability

Of course, all of the aggressive performance and pricing in the world doesn't matter if the user experience bombs, which is why G-Technology put months of extra effort into making the G-RACK 12 GUI setup and implementation smooth and cohesive. All told, Gallo had SHED's G-RACK 12 out of the box and logged in within 30 minutes.

However, don't think that fast setup requires a skimpy feature set. The G-RACK 12 utilizes BTRfs, prioritizing performance with easy administration. G-RACK's rsync capability improves performance and allows users to synchronize data between multiple systems with confidence. G-Technology also integrated performance tuning capabilities as well as many kinds of configurations that enable improved performance operations.

Gallo adds, "If you want to start tweaking things by doing ACLs, workspaces, permissions, or particular kinds of services, like NFS versus rsync versus AFP, it's literally done with the click of a button. We work on many projects and don't want to degrade performance or affect overall usability because of partitioned drives or multiple workspaces. This gives us a lot of control."

Still, no matter how many advantages SHED finds for the G-RACK 12 over its older Fibre-based SAN, and regardless of how much easier G-Technology's NAS is to administer and maintain, Gallo believes that reliability is ultimately the last word in his storage decisions.

"We're handling valuable digital assets that sometimes cost millions of dollars to create," he says. "Our customers have to completely trust that we will take care of their data, and that's why our DITs [digital imaging technicians] rely on G-Technology, the de facto standard in this industry. I cannot recall a time that a G-Technology drive ever failed me — and I've been in this business for 23 years. Every DIT I work with will tell you the same thing. We operate like a boutique facility, but we compete with big, A-list players, and G-Technology is at the heart of the storage strategy that allows us to succeed here."

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shed.la

G|RACK™ 12



Toby Gallo is a leader in his respective field who uses G-Technology products in his day-to-day work life and is compensated for his participation.

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