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More Space, More Time: Broadway VideoSM Breaks Through Production Barriers With G-Technology[®]'s G-RACK[™] 12

Half-way through the sixth season of editing the hit TV show *Portlandia*[®], Ted Pacult realized his team would run head-first into the brick wall of their storage capacity limit. Some of the causes were known, such as upgrading their offline proxy files from ProRes 422 to 422 HQ, significantly inflating the space required for footage. Other causes proved unpredictable, such as increasingly complex VFX sequences and higher numbers of edit requests from post teams. Whatever the reasons, Ted and his Los Angeles-based team at Broadway Video were lamenting their current network-attached storage (NAS) box and groping for solutions.

"It was a no-win," Ted recalls. "Upgrading the capacity meant taking the NAS down, formatting it, and starting over from scratch, and that meant losing days we didn't have in the middle of production. We took the lesser of two evils and started offloading or deleting files to make room, but not only was that risky — because you never know what someone might need later — it also meant spending hours combing through terabytes of data looking for stuff to remove. It was a nightmare I never want to repeat."

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When NAS Needs More

Broadway had installed its 40TB NAS — a noisy, thigh-high, rackmounted beast — in an attempt to improve from the 24TB model used on *Portlandia* Season 5 as well as Broadway's prior non-NAS workflow. Originally, Broadway had used a G-SPEED® Studio XL for live work storage and smaller G-Technology solutions, such as Evolution Series drives, to shuttle content between the seven team members working on *Portlandia*. As often happens with growing business groups, though, the lack of a centralized storage pool created inefficiencies. Two or three people dividing up a project and passing around drives is one thing; half a dozen or more asking "who's got those files?" or "is this the most current scene edit?" becomes untenable, and that's before dealing with data backup.

Going into *Portlandia* Season 6, Ted Pacult found himself with less than 25TB of available NAS capacity. Ideally, the Broadway team would do all of its editing online, meaning working with straight live work copies of the original files. This enables full visual accuracy throughout the editing pipeline — what you see is what you get. Working online proved impossible for two reasons. First, Broadway's NAS lacked the connectivity bandwidth to handle editing of native 4K files in real-time. More importantly, with seasons now clocking in above 40TB (before backups), there simply wasn't enough space to maintain native files for editing.

Being forced to work offline carries bigger consequences than just burning time on creating compressed proxy files. As Ted describes it, his group would often run into VFX and overlay issues. For example, when VFX sequences are done on a 1080 offline version, discrepancies can appear when conforming back to the 4K original. Content would look fine offline, but the overlays wouldn't integrate perfectly after rendering. Nevertheless, without a better solution on hand, Broadway had to work in ProRes, which required only 1/6 to 1/8 of the original's bandwidth and capacity.

Lack of bandwidth also clobbered Broadway's ability to collaborate optimally on another project, IFC®'s satire show Documentary NowSM Season 1.

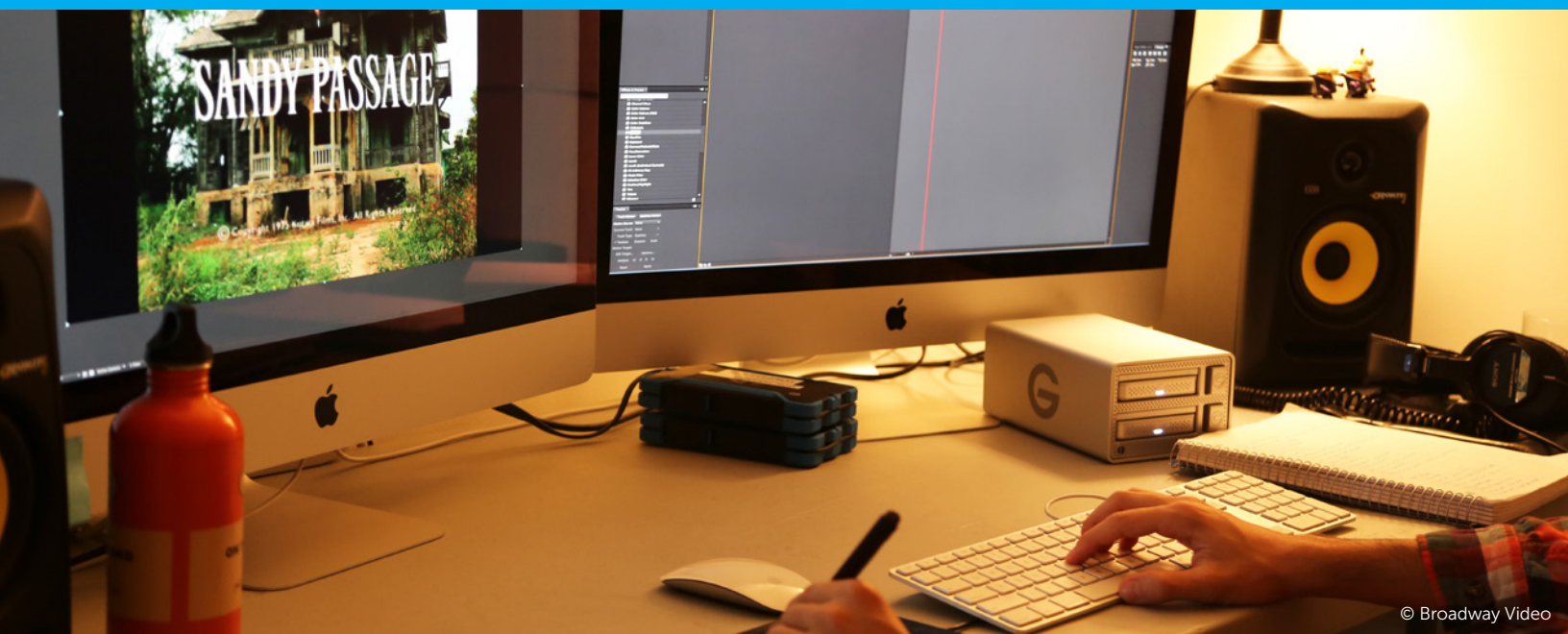
"We were split between coasts," says Ted. "Our system had all of the files here in L.A., but if we wanted to include our New York editor in post, we had to send files to him. If it was too big to transfer over DropboxSM, we had to send a physical drive, which meant at least a 24-hour delay. Also, he couldn't integrate well with this team's graphics, effects, and everything else we were doing in-house. That really impacted conforming, because we could never be sure if New York did or used something we didn't have here in L.A. Of course, if we'd had a better NAS, he could have functioned as if he were here."

G-RACK 12: When Less Does (Way) More

As a long-time avid user of G-Technology external solutions, Ted Pacult wanted to be first in line when the storage company launched its first rackmount network storage product, the G-RACK 12. The 2U NAS measures in at a fraction of the size and power consumption of Broadway's former network storage box, yet it still features 12 drive bays, yielding capacities ranging from 48TB to 120TB. Units arrive stocked with Enterprise-class HGST Ultrastar® drives

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formatted under G-Technology's own NAS OS (located on two mirrored, rear-mounted 2.5" drives) for flexible data protection with the B-tree file system (BTRfs).

Ted notes being drawn to the G-RACK's ample expansion capabilities. When the day inevitably arrives that Broadway eats through its initial 72TB, he can easily add up to another 120TB with G-Technology's Expansion Chassis. Today, he only uses one of the storage server's four 10 gigabit Ethernet ports, but he can easily aggregate these for even faster bandwidth as future needs require. And, of course, the 2U form factor frees up vertical rack space previously consumed by his old NAS that can now be put to better use.

Physical consolidation of storage resources matters, but so does superior service. Ted admits that Broadway's former primary NAS was custom built by one of the show writers. Additionally, the company had a couple of smaller NAS units purchased via retail. As a result, support sometimes resulted in finger-pointing, and if the writer happened to be busy on a deadline, tech support waited. Today, Broadway has one supplier for its live work storage — one number to call that has always been available and responsive on the few occasions Ted has needed to call it over the years. However, even in setting up and configuring the G-RACK 12, no support proved necessary. From unboxing to exploring the NAS solution's intuitive graphical interface to having the new 72TB RAID volume up and running, Ted spent less than one hour, and most of that was spent on physical mounting into Broadway's back room rack.

Ted's old NAS topped out around 700 MB/s for read and write operations. The G-RACK 12 can reach up to 2000 MB/s, allowing either online editing or a significant expansion in the possible number of simultaneous users. This leap in bandwidth will take advantage of Broadway's high-speed fiber connections and allow for much tighter collaboration between the two coastal locations and other offices.

Putting the "G" in Growth

Business keeps booming at Broadway. In addition to Portlandia, Ted's team now tackles Documentary Now Season 2, does VFX work on FX's Man Seeking Woman®, and more. Over time, Ted expects to find increasing numbers of ways in which Broadway can increase its production efficiency across these shows, such as with sharing VFX libraries. This will eliminate waste, both in storage capacity and time, and make sure that everyone is leveraging all of the tools available to them.

"The ideal environment for us has always been to work from a system that never slows down and can handle whatever we throw at it. Finally, with the G-RACK, we have that. We didn't even have to put a bird on it."

Ted Pacult





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Ultimately, the G-RACK 12 story is one of steadily increasing ROI for Broadway Video. With the solution providing Broadway Video with improvements in capacity, speed, centralization and collaboration, benefits will only continue to climb along with the team's utilization. Broadway will be able to take on even more projects, and Ted will finally get his wish and start editing online with native files.

"The G-RACK 12 has fundamentally changed our workflow," says Ted. "We still use our G-SPEED Studio XL units for show backup and our ev drives for things like handing off sequences to other teams, but the NAS makes everything more accessible to everyone within our company. The ideal environment for us has always been to work from a system that never slows down and can handle whatever we throw at it. Finally, with the G-RACK, we have that. We didn't even have to put a bird on it."

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