



G-Technology™

NOVUS SELECT: BREAKING THROUGH SCALING BARRIERS WITH G-TECHNOLOGY'S G-RACK™ 12

This case study is sponsored by G-Technology.

Q: How do I break into the adventure photography market?

A: Simple. Go on adventures and shoot great pictures!

(Interview excerpt with Corey Rich, Adventure/action photographer/director and Co-Founder of Novus Select)

Corey Rich, co-founder of Novus Select, is a no-nonsense, hard-working, fun-loving, and immensely-creative action and adventure photographer and director. He caught the photography bug at the early age of 13 while hauling his camera with him on rock climbing excursions. Throughout college and later as a photojournalist, Corey's talent and projects have grown, but his philosophy remains unchanged— go out on adventures and shoot great photos. Corey's photography has graced the covers for some of the world's largest magazine publications.

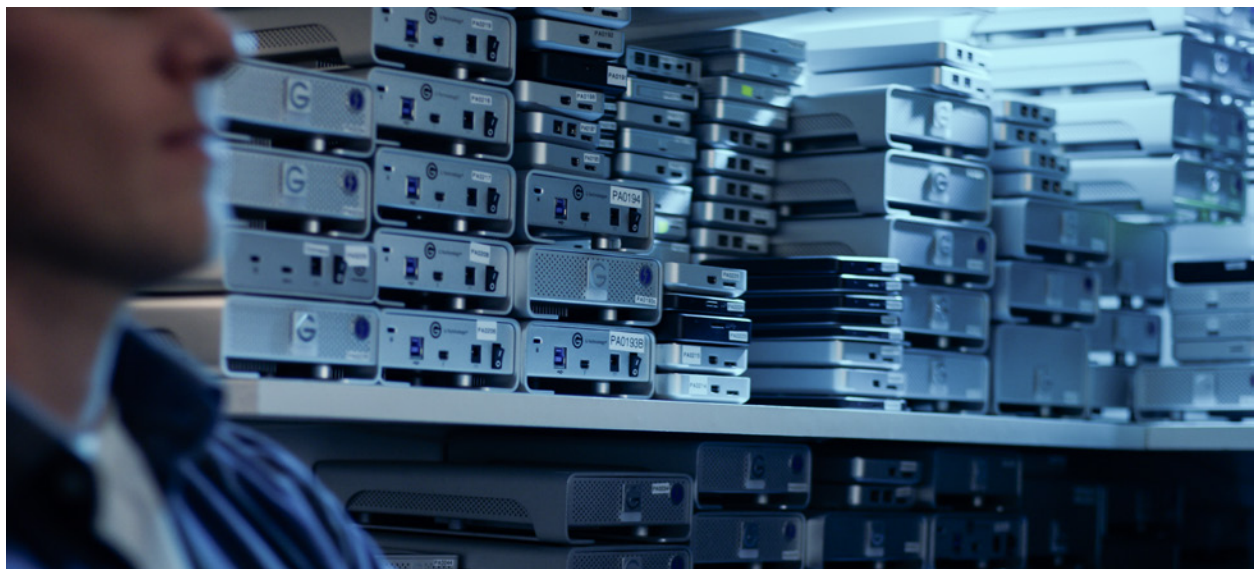
Corey eventually realized that creating great photography could only go so far as a one-man show. So, Corey and three others (photographer Lincoln Else, photographer Wynn Ruji, and operations director Andy Mead) founded a small photo/video production outfit called Novus Select in a Lake Tahoe garage.

Over the last six years, Novus Select has blossomed into a full-blown creative agency. The now 14-person company recently moved from their small Lake Tahoe cabin to a real corporate office. Novus Select continues to grow its portfolio ([see the Novus Select 2016 highlight reel](#)) ranging from car commercials to documentaries for large, multinational corporations. Novus Select plans to continue building for years to come, but that comes with inevitable growing pains and obstacles, particularly with managing back-end production storage

A SEA OF STORAGE

Like most photographers who started before the late '90s, the Novus Select team originally shot on film. With the move to digital came the challenge of backing up – at first to CDs, then DVDs, and eventually external hard drives. As the jobs piled up, so did the drives. It fell to Novus Select's Andy Mead to maintain this ocean of offline gigabytes and wade through it when requests came in for historical files, like for an update to a previous client project or for an internal promotional asset.

"When we went to cut the company reel a few years ago, and I had to track down a hundred hard drives to do it," recalls Andy. "It was so utterly painful and inefficient. [...] I knew that if we could someday migrate to a centralized, networked, high-performance server, cutting that reel would take a day instead of three weeks."



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Aside from the problem of tracking which assets exist on which drives, back-ups became another huge issue for management. By mid-2017, Novus Select was warehousing over one thousand drives, with half of them being backups of the other half. Corey mentioned that the majority of these drives are G-Technology® models and he has been very pleased with their performance.

Hoping to tame some of its rampant drive sprawl with a reliable brand, the Novus Select crew upgraded to three 80TB G-SPEED™ Shuttle XL storage towers, each with eight drive bays and extensive RAID configuration options. One of these towers remains on-site, another one goes to a facility three miles from the main office, and the third one resides roughly 50 miles away. Novus Select rotates these towers and updates them with regularly, periodic incremental backups, so that if some natural disaster, such as a flood or tornado, damages two of the G-SPEED Shuttle XL towers, the remaining G-SPEED Shuttle XL units would still keep the back-up media safe.



G-SPEED™ Shuttle XL with Thunderbolt

Having a tower with 80TB of storage – equipped with dual Thunderbolt™ 2 ports and a 1350MB/s maximum throughput read speed – dramatically boosted Novus Select's efficiency on current projects. However, even 80TB wouldn't be sustainable for long. The company's growing business meant that producers were pouring in roughly 8TB of still images and video each month. Moreover, it was difficult to have concurrent workflows with more than one editor working off the main storage since the G-SPEED Shuttle XL is direct-connected storage tethered to a single workstation.

The only sensible path forward became clear: Novus Select needed to scale up to a network-attached storage (NAS) infrastructure to keep up with its growing storage needs.



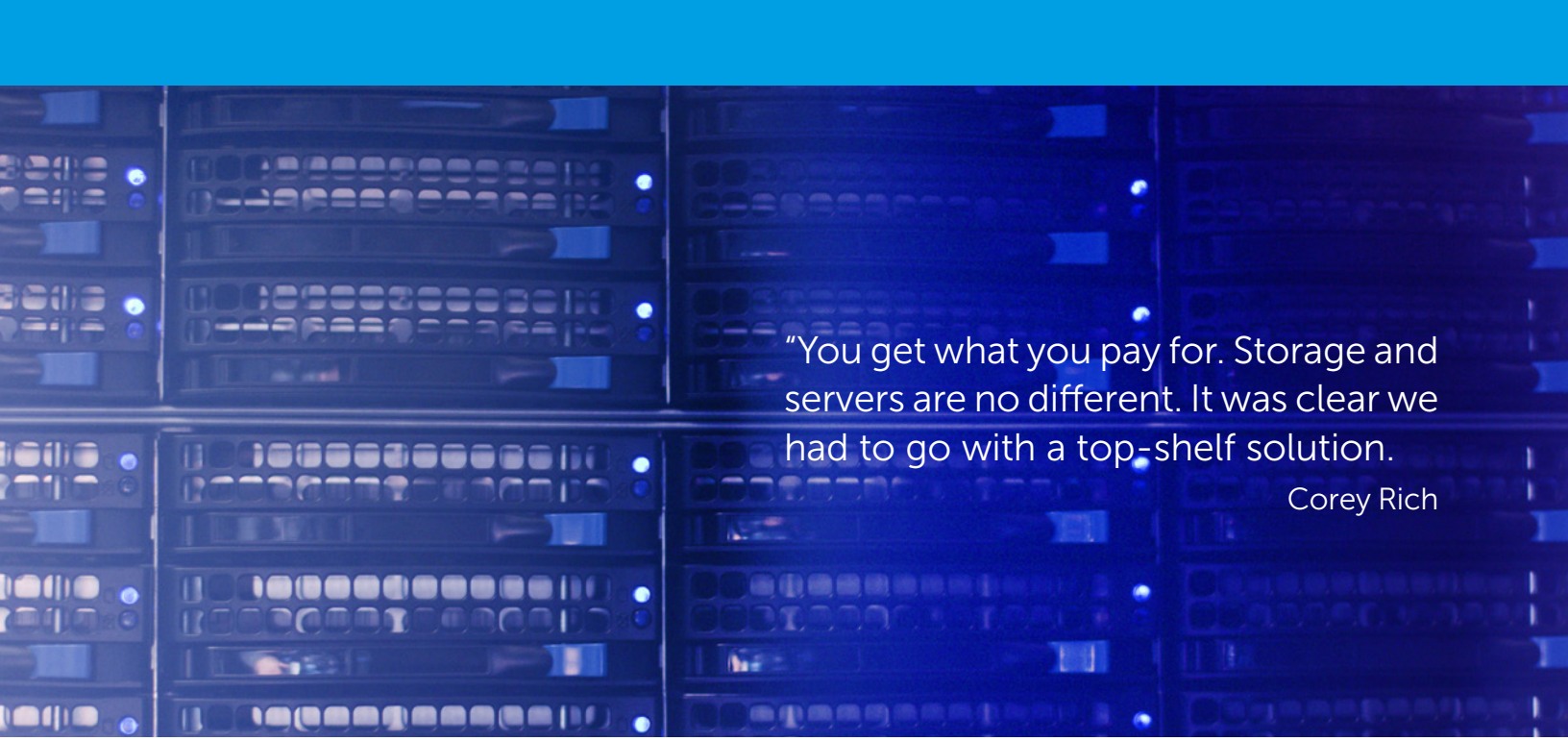
FINDING TERRA FIRMA WITH THE G-RACK™ 12

Novus Select made the leap to networked storage in 2017. Keeping with a brand they had relied on over the years, Novus Select procured a 120TB G-RACK 12 network storage server and 120TB G-RACK 12 EXP expansion chassis. Andy set up the new units in a double-fault tolerant RAID 6, which provided 200TB of usable storage. Andy figured that they could load 180TB into the system before they simply add another G-RACK 12 EXP – up to 4 additional units as needed.

The G-RACK 12 storage server offers 12 drive bays, each of which comes stocked with a HGST® Enterprise-class hard drive. Dual 6-Core Intel® Xeon® E5 Haswell V3 processors handle all RAID and application needs, enabling a wide range of services with throughput speeds of up to 2000 MB/s. The G-RACK 12 also hosts four 10 Gbps Ethernet ports. One port is used as a public IP so that field producers can grab assets as needed. The other three ports drive in-house editing needs. Now for the first time, three or four editors can work concurrently on the same collection of project files without the fear of jamming up a host workstation or the inconvenience of having to run drives between desks. With three additional 10 GbE ports available to the office, Corey expects to significantly grow his editing team without sacrificing any workflow efficiency. "You can buy a cheap camera or the gold standard of cameras," Corey says. "You get what you pay for. Storage and servers are no different. It was clear we had to go with a top-shelf solution. We've been doing over 100 projects a year in the field, and most of those are done on

G|RACK™ 12





"You get what you pay for. Storage and servers are no different. It was clear we had to go with a top-shelf solution.

Corey Rich

G-Technology products. We need reliability and speed, and we need it to be robust in the field. With years of seeing these qualities across G-Technology's storage portfolio, we had high confidence of getting more of the same with the G-RACK 12. It was affordable, and G-Technology's customer service has been extraordinary over the years."

As any small company knows, finding the time between client work to make necessary back-end updates can be hard. The team needs to balance keeping the customers happy while also taking the time to evolve its infrastructure and efficiency behind-the-scenes. A bigger company could implement a full team to do the work, but for a small company, pulling out even one person to perform this upgrade can be hugely disruptive. Fortunately, the G-RACK 12 migration created no setbacks to productivity for Novus Select.

"I was shocked at how easy the G-RACK 12 was to install," notes Novus Select Producer Brett Wilhelm. "Unpacking, loading the drives, installing in the racks, booting it up, and going through the wizards was maybe two hours of time. I can't imagine how the web-based GUI could have been easier to navigate and implement. Physically copying the data is a separate step, but in terms of business impact, we saw no slow-down to our operations because of this storage install."





THE LAST HAUL: ARCHIVING

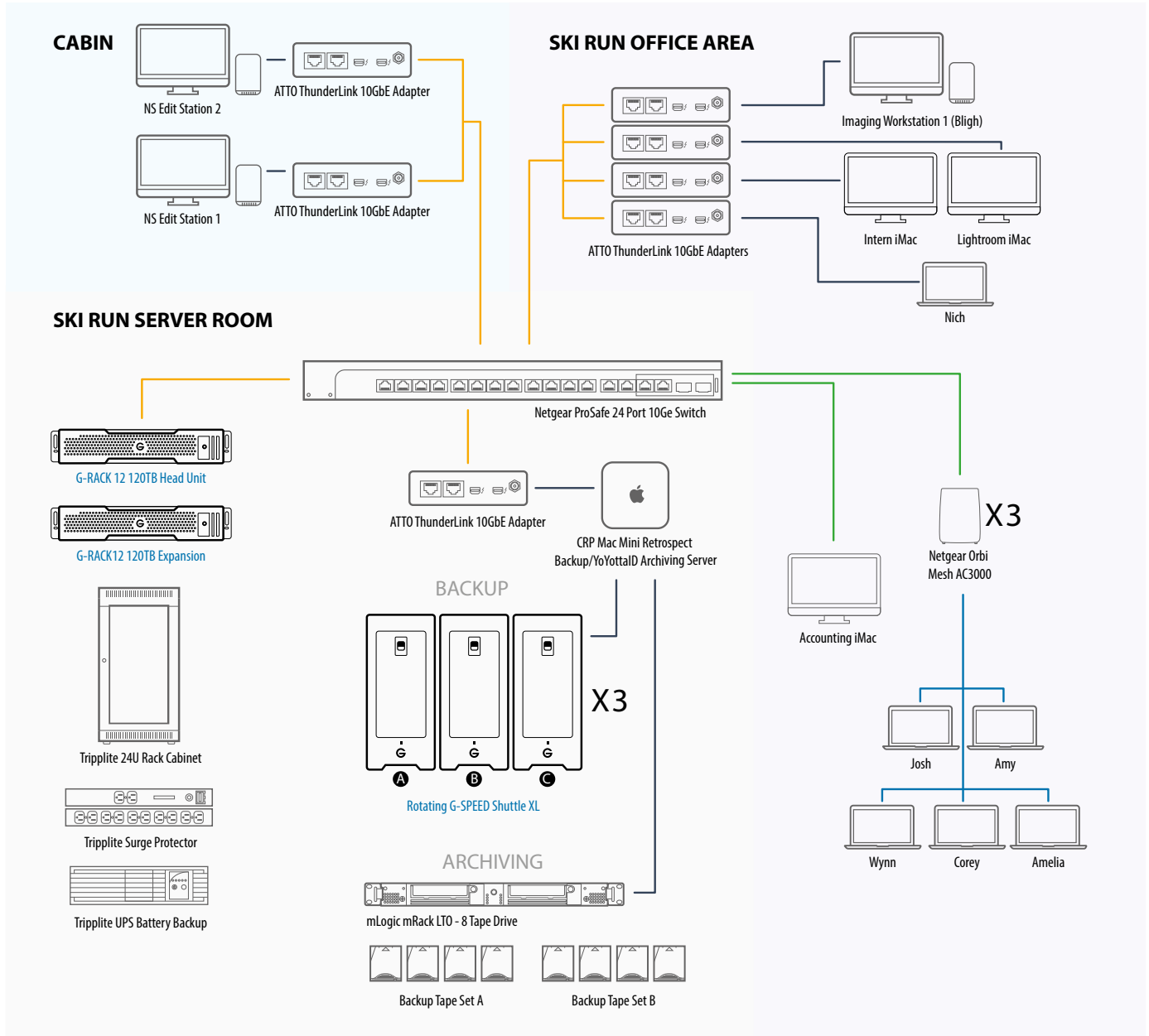
While finally meeting its active and near-term data needs, Novus Select had one last storage issue to remedy: archiving. Maintaining tens (and soon hundreds) of terabytes of cold storage can be done on disk, but it's more expensive than sending the data to a well-managed Linear Tape Open (LTO) solution. Novus Select opted for mLogic's LTO-8 to mount adjacently to the G-RACK 12 storage server.

Going with LTO-8 tape drive offered several advantages. In place of consuming valuable network bandwidth for archiving, the LTO-8 connects to its host system via a Thunderbolt 2 port. In this case, the host computer runs the YoYotta LTFS backup, transcoding, and archival applications. YoYotta efficiently pulls data from the G-RACK 12 storage server and pours it into the mLogic LTO-8 at up to 300 MB/s. Novus Select can also easily maintain archives in both work sites since the LTO-8 tape drive features two tape bays for making archives.

Novus Select now finds itself better organized and prepared with the G-RACK 12 storage server and mLogic LTO-8 tape drive side by side. With centralized network storage, it's much easier for the Novus Select team to build portfolios and marketing assets letting them build their brand better and faster. Having the G-RACK 12 allows the company to shift their focus from on asset management back to productive creativity. Most importantly, now the Novus Select team can find the time to do that one most elusive thing of all: enjoy life.

NOVUS SELECT TAHOE OFFICE NETWORK MAP

1111 SKI RUN BLVD



CONNECTIVITY ATTO 10G Ethernet 1G Ethernet Wireless Thunderbolt

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