



Preservation: Nino Leitner, the G-Technology® G-SPEED® Shuttle XL with Thunderbolt™ and Saving Nature's Majesty

From their secluded position near the river bank, Austrian filmmaker Nino Leitner and his Phantom Flex operator, Nicolas Divischek, barely dared to breathe. They watched as two young bull elephants tested their burgeoning strength in the water, wrestling and dunking each other like any pair of teenaged boys. The young elephants made such a spectacle enjoying themselves that the entire herd waded in to join in the play and enjoy relief from the relentless sun. It was a sight so rare that the Shamwari Game Reserve's head ranger professed to have never seen such a thing in his career.

Nino and his team filmed the animals' wild rumpus for an hour, but they never forgot their danger. Only months before, while shooting from the roof of his vehicle, Nic had been approached by a similar bull. The 4.5 meter tall elephant was in musth, the frenzied, often violent state associated with rutting. He surrounded Nic with his tusks and engaged him in an all-too-serious stare-down. It was a life-threatening situation that, like so many other random conditions in the African wild, inspires humility and respect but could have easily turned fatal. All around them on the 25,000-hectare reserve, lions and cheetahs remained a fascinating yet constant threat. Rhinoceroses were known to charge and gore tour vehicles. Shamwari is no place for the slow or weak of resolve.



Unfortunately, the resolve of poachers has proven equally persistent. Even though South Africa now sanctions its game reserves to deploy anti-poaching teams with permission to shoot on sight, that hasn't stopped attacks. Most killings are fueled by European "trophy" seekers and high demand from the Chinese black market for animal substances alleged to possess magical or quasi-medicinal properties. In 2014, Shamwari noted that 1,214 rhinos had been slaughtered by poachers in South Africa alone. Often, poachers cut off the part of the face containing the horns and leave the majestic animal to die horribly. Today, the black rhino remains critically endangered, with only a few thousand left in the world. Three of the animal's seven or eight subspecies have been hunted to extinction.

G-TEAM ambassador Nino Leitner, famous for stunning films, workshops, informative blog, and the camera review platform cinema5D.com, felt compelled to take action. Reaching out to partners G-Technology and Zeiss®, and securing the help of South African company Highspeedworx, which owns the rare 1,000 FPS Phantom Flex4K camera, Nino lined up five days at Shamwari. The good news was that his partners delivered, and the opportunity to present the glory and endangerment of Shamwari's magnificent creatures arrived. The bad news was that he needed to present the finished documentary at the Broadcast Video Expo in London — a deadline of less than two weeks from shooting, twelve hours removed from the conveniences of Cape Town, and over 8,700 km of separation from his editing team in Austria.

Filming those playful bull elephants had been the rarest stroke of luck. To meet his deadline, though, Nino would need more than luck. He would need the strongest and most dependable storage workflow to be found in the world.

Wild Data Loads

In preparing for his South African adventure, the filming challenges Nino faced sometimes seemed taller than the giraffes warily eyeing him. As with any filming job, his workflow would encompass data capture, backup, ingestion for editing, and export. However, the amount of and types of footage he would capture, combined with the intensely compacted turn-around schedule for sending files to his team back home, required some rather notable work-arounds.

First and foremost, Nino faced the awesome output of the Phantom Flex4K. The \$160,000 USD camera can record up to five seconds bursts at 1,000 frames per second in 4K uncompressed RAW format. A five-second recording consumed roughly 64GB of storage capacity. Just a few shots would fill one of the Phantom camera's 1TB Phantom Cinemags. Each of these cost roughly \$25,000 USD owing to their exceptional speed, so the team could only bring a few.

"You have to constantly offload that stuff in the field," says Nino. "This presents a problem because if you use a normal external hard drive, it will take a long time to transfer just a few shots. You're talking like half a terabyte most of the time. You have to select shots on the camera. Otherwise, it's just too insane. Even still, you're left with a mountain of data, and then you need to find a way to deal with it."

In addition to the Phantom, Nino's team also shot a RED EPIC® capable of 100+ FPS capture at 6K resolution as well as Sony® FS7, the Sony Alpha α7s, drones, and other cameras. The RED EPIC in particular would add a substantial amount of data to Nino's daily load.

Aside from the fact that professional creative workflow defaults to using external storage for the bulk of backup and editing work, there was no way that Nino's MacBook Pro® could have



possibly contained so much footage. Over five days, the team collected over 30TB of data including raw content, copies and backup. However, Nino knew better than to select any external storage solution, even from within his preferred G-Technology lineup. He needed a solution with the capacity, reliability, and performance of the G-Technology G-SPEED® Studio XL with Thunderbolt in his Austrian studio but more optimized for use in the field — especially the harsh, rolling plains of Shamwari.

The timing couldn't have been better. G-Technology had just released its G-SPEED Shuttle XL with Thunderbolt and the G-SPEED Shuttle XL with ev Series Bay Adapters. Nino took one of each.

Storage on Safari

Based on Thunderbolt 2 technology, just like all other G-Technology Studio solutions, the new G-SPEED Shuttle XL with Thunderbolt comes in two models, each with eight bays. Stocked with Enterprise-class 8TB drives, the first Shuttle XL model can hold up to 64TB of raw, RAID-ready capacity. The second model places ev Series Bay Adapters in the last two bays. This leaves six bays for filling with Enterprise-class hard drives (up to 48TB with 8TB drives) and two bays ready to accept Evolution Series drive modules and readers like G-DRIVE® ev RaW and ev Series Reader: RED® MINI-MAG® edition. Equipped with one of each model, Nino would put the ev bays to use as a critical part of his export and editing plan.



So far, this design sounds much like the G-SPEED Studio XL with Thunderbolt and the G-SPEED Studio XL with ev Series Bay Adapters. However, G-Technology spent many months listening to input from its ambassadors and many creative professional customers and redesigned both solutions specifically for field work.

"One of the big problems with hard drives and computers in general is that they're really not made for outside use," says Nino. "You always need to find just the right spots — level, shielded from the weather, and so on. Even if you can do that, it's still really made for office use. It can't take a beating. The entire concept of the G-SPEED Shuttle XL with Thunderbolt is that they look like jerry cans. You can carry them around with their top handle very easily. They're heavy, but they are also very robust, and there's even a Pelican™ case that fits perfectly around it. It doesn't get more rugged than this in a hard drive RAID."

As soon as camera operators arrived back at the lodge with mags or flash cards, the DIT's top priority was to back up their data. Software on Nino's MacBook Pro copied files onto both G-SPEED Shuttle XL units simultaneously. Both units were configured in RAID 5, providing further file protection against the possible failure of any single drive in either enclosure. For RED MINI-MAG®, Nino brought an ev Series Reader RED MINI-MAG Edition. This allowed his crew the same cordless, plug-and-go simplicity with their RED MINI-MAGs that they enjoyed when handling regular G-Technology Evolution Series drives. As soon as techs plugged in the RED MINI-MAGs into the ev Series Reader, footage from those mags immediately started copying to hard disk-based volumes on both G-SPEED Shuttle XL units using the ShotPut® pro software.

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Nino Leitner





With all of the day's files ingested and double-protected, Nino needed to begin exporting additional copies for sending to Austria. The 1TB capacity of his G-DRIVE ev ATC with Thunderbolt units was plenty for most of his daily files, even the RED EPIC footage, but the RAW Phantom data proved too prodigious. For this, Nino needed to compress his files with ProRes 4444 XQ. The downsized files would still be sufficient for editors to begin their layout and production, giving them a few days head start in advance of receiving the full-size files. In all, Nino sent off three batches of G-DRIVE ev ATC with Thunderbolt drives.

"I put each of these G-DRIVE ev drives in an ev All-Terrain Case and handed them off to be taken from the reserve and shipped to Europe for editing," says Nino. "Why use the ev All-Terrain Case when the shipper would pack it really well? Because getting from me to the shipper was critical. Literally, I didn't know if the carrier would get stuck in the bush or something. So, no matter what, I knew the footage would be safe."

That still left the need to get full-resolution files back home. At the end of shooting, when the team was back to worrying about hours rather than minutes, Nino made yet another copy of everything, including the RAW Phantom files, onto twin sets of 3TB G-DRIVE with Thunderbolt units. He ordered each set to be sent separately via FedEx® and DHL®, just in case any of the shipments, G-DRIVE ev drives or current G-DRIVE units were delayed in customs. Something was bound to get through. Nino knew from long experience that customs around the world could be just as capricious as any predator of the South African savannah.

Protection for Protection

Back in Cape Town after wrapping up in Shamwari, Nino breathes a sigh of relief as he watches the first edited previews from his crew in Austria over a password-protected Vimeo® account. They received the first two G-DRIVE ev ATC with Thunderbolt shipments in good order, and production is under way. All of that planning and trusting in the right equipment has paid off. Nino will make his BVE presentation deadline.

"You always need to do three backup copies, but when time matters, you have to do them quickly," advises Nino. "If you didn't have a high performance solution like the G-SPEED Shuttle XL with Thunderbolt, it would take at least half the night just to copy it once. And one copy is not enough. With the G-SPEED Shuttle XL configured in RAID 5, it was the perfect compromise between speed and reliability. It's safe and fast enough to offload data in no time. Literally, the backup process was limited by the ports on the computer and the speed of our memory cards, not by the hard drives at all. Hard drives are usually the limiting factor in many of these processes, and there couldn't have been a better job to be free from worrying about that."

Nino smiles as he watches his team's clips from almost half a world away. Certainly, there's the satisfaction of a well-executed plan, but more deeply gratifying is the sense that his work may play some part in helping to raise awareness about the peril of poaching and how the world stands on the verge of losing so much more incredible, irreplaceable wildlife. For most of the world to appreciate beauty, it must be presented in a strikingly beautiful way, and that process begins with the creation and protection of those footage files. For Nino Leitner and countless other creative pros, that protection begins, evolves, and travels around the world on G-Technology solutions.

Shamwari Game Preserve
shamwari.com

G-TEAM Member Nino Leitner
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*G-SPEED® Shuttle XL with
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