Dealing with Data – a Cameraman's Guide

Workshop held by
Neil Harrison
Wednesday 26th August
2015
Location: The Space
Project Manchester

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PICTURE: Keith Massey

We attended the workshop in Manchester at 'The Space Project' a new purpose-built TV production stage complex with adjoining workshop rooms and facilities including an excellent café. We were in the capable hands of Lighting Cameraman Neil Harrison, a very knowledgeable and self-confessed 'geek' and data expert.

With the rise of the cameras like FS7 F5/F55 you may be generating 200Gb of data a day. Ian said that he had suggested it would be good for the Guild to hold a workshop about data because he was continually being asked the same questions on online forums by camera folk, editors, camera assistants etc. about the best way to deal with data. His other regular online discussion topics included questions about LOG and LUTs.

An introduction
Neil started off by listing the topics for the day including: data storage and backup establishing procedures and workflows to manage data Software useful for dealing with data; Codecs Logs, luts, editing, grading and transcoding.

Delivering to Post
He said, you may be a self shooter and deal with all the data yourself perhaps with a quick turnaround, or you may hand over all the footage after a shoot but it was important to understand the requirements of post production so that an editor would get the type of data they are expecting

in order to make the post production process much easier.

Who backs up their footage?
We kicked off with 'who backs up their footage?' Who backs up everything they shoot? Do you back up on the set or location and additionally back at home/base? We are not shooting on tape or film anymore. These were trusted and reliable formats as far as data loss was concerned and we handed the footage over at the end of the day and that was the end of our job concerning data. The XDCam optical disc sought to give us the same trusted workflow, handing over a virgin disc that was later stored on a shelf, but we now mostly use reusable cards and hard drives that can fail or be lost. Data can be very unforgiving.

Who holds the responsibility for the data that's shot?
We may be delivering using our own cards or with client-provided cards. Delivering all the rushes to post on our own hard drive or a client's hard drive, using our laptops or even a client's laptop If the client's cards or your cards are corrupted, if your

backup hard drive is damaged or footage missing from it, who's responsibility is it? The answer is that it is still our responsibility.

There are numerous situations today where clients cards are given to people to shoot on, everyone is in the same location and the card is handed over at the end of the day and the perceived responsibility for data has been handed over with the card and it's all very straight-forward, but the problems start to come with corrupted cards or hard drives, cards being reused and accidentally overwritten or erased. The complexity of dealing with footage from multiple cameras with different formats, perhaps in foreign locations with data being held by different people on separate cards and hard drives in fast-moving situations all with perhaps a lack of time given over to backing up.

Horror stories
Ian had numerous stories of data being lost and he recounted the tale of a cameraman who came back from a foreign shoot with footage shot on a card and the

card was found by the editor to be blank. The cameraman had most probably handed over the wrong card, leaving the original footage card in the camera, which he then unknowingly reformatted and recorded over.

Handling data
Ian said that in his experience production companies fell into two camps with regard to handling data with some carrying on as before as with the days of film or video tapes and others going into a complete state of paranoia, copying and backing up data four to six times and going to ridiculous lengths to archive footage. He also mentioned that it might be useful to have a discussion with production about data loss and if they supply cards what happens if a card fails. How does the card footage get back to them and will they accept responsibility in getting the footage back if no back up is made?

Data does not exist unless it is backed up in three locations
A well-known rule of thumb in the IT industry is that data does not exist unless it is backed up

in three locations. You are not always going to be able to do this, but it is a useful mantra.

Procedures
We do not want a situation of data loss at all; we will loose business and customers. What we need is a 100%-reliable data procedure and this is what we should be striving for. We may not be able to achieve this completely but we must put in place procedures that are so robust that the chance of loss is minimal. We can then, should the need arise, put across our case that we cannot be held responsible or at fault if data is somehow lost, because our procedures are robust and that the loss is beyond our control. Handing over cards at the end of the day is just not good enough because If data is lost, it is easy for the client to say, 'why didn't you check it and back it up!'

Workflow
We must do all we can to prevent errors and mistakes. We could keep our own rolling archive of all the footage that we shoot should the client lose it. We must back up on set using specialist copying software such as Shot Put Pro that uses checksum verification. Drag and drop is not good enough and should be avoided. Dual recoding on some cameras helps with the problem of corrupted cards. Regular problems can be caused by faulty wires and connectors to and from laptops, hard drives and cards readers.

Don't think that you can rely on specialist companies to extract data from corrupted or over written cards; this process usually doesn't work.

Storage
Cards are more robust than hard drives, which have multiple moving parts that are fragile and can break. Hard drives can fail while dormant and need spinning up regularly. SSD's are better but can have some problems.

Offsite storage is good but expensive and 'The Cloud' is not good for storage because of time-consuming upload speeds.

A good file-naming convention is important when labelling files and sticking to underscores not slashes is important. Cards need to be formatted in camera before use. Different cameras can have their own card file structure so swapping cards is not advisable. Ian gave us an idea of some of the better manufacturers of hard drives in his experience and useful information on copying speeds.

Codecs
Ian went through most of the common recording codecs and described their uses and in some cases compromises. He covered compression, bit rate, chroma sub sampling and the different codecs you may need for acquisition, mastering, delivery, and the best codecs for chromakey.

Software
Ian then gave us a demonstration of Shot Put Pro and Da Vinci Resolve. Shot Put Pro is certainly very straight-forward, I can't tell you how many times he said that Blackmagic's Da Vinci Resolve was the best thing since sliced bread! From experience I certainly believe this to be true.

LOG and LUTs
Ian took us through the rudimentarys of LOG and LUTs showing us how shooting LOG helps to preserve dynamic range. LUTs can be used to correct LOG footage to REC709 and in addition can be chosen for creative purposes to give a certain 'look'.

I think we all went away from this workshop with a much clearer understanding of the many technical aspects of handling data. The gravity of not adopting good data procedures can be chilling.

Thank you Ian