

**dpp**<sup>TM</sup>  
digital production partnership

# FILE DELIVERY THE STORY SO FAR



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## FOREWORD

At IBC in Amsterdam in September 2014, around two weeks before the UK's File Delivery Day of 1st October, the DPP had a breakfast meeting with several broadcasters from other countries. It was already evident from the preparations for FD Day that the 1st October deadline was going to be achieved without major mishap. The other broadcasters were astonished – not so much that a common standard for file delivery had been defined, but that it was actually going to be implemented!

It was at that moment we realised we had been so busy trying to ensure FD Day happened, that we hadn't really reflected on what it had taken to make it a success. This is perhaps typical of major change moments: everyone is so busy delivering the change, they forget to document what it took to achieve it.

We made a mental note to ensure we didn't forget. And here, around six months later, is our account of the change journey.

What we have provided here is a relatively high level account. If any Members would like to learn more about any particular part of this unique example of pan-industry collaboration, don't hesitate to contact us, and we'll try and provide further insight.

Meanwhile thank you once again to all of you who made FD Day happen.



**Mark Harrison**  
Managing Director  
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## EXECUTIVE SUMMARY

At IBC 2013, in a time when delivery of finished programmes on videotape was the norm, the Digital Production Partnership announced that 1st October 2014 would mark File Delivery Day for all UK broadcasters. From that date, ITV and Channel 4 would join Channel 5 and Sky in accepting commissioned programme deliveries as files by default, and the BBC would begin accepting files from internal and independent producers. All the broadcasters committed to using the AS-11 DPP standard the partnership had previously published, requiring a minimum set of metadata as well as particular formats of audio and video.

Having all the UK's broadcasters make the same change to their processes at the same time was an extraordinary moment of co-ordinated action. Moreover, the post-production houses, production companies, equipment manufacturers and others also had a critical role in making this moment a success. Even those who've been in the industry for many years will find it hard to recall another point where the industry made such a joint commitment.

So a little over six months on, how successful has the change been? The UK broadcasting industry can now truly call itself file based, even if there are some small pockets of tape still to be rooted out. The production, post-production, broadcaster and vendor communities have worked hard to overcome the inevitable challenges and teething troubles, with the DPP providing a focal point for this wide-reaching change work. When the partnership set out on this journey perhaps we underestimated how much work lay ahead; yet we also underestimated just how incredible an effort the whole industry would put in, and how much success we could achieve in so little time.

This report presents the story of the UK broadcast industry's transition to file delivery, examining where we've got to in a short time (over 90% file delivery for some broadcasters); what the challenges have been (new technology and new workflows); and what's still to be done.

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# Ultimately, the aim of the DPP has always been to help everyone to enjoy the benefits of technology change, with less pain and cost.

The DPP was founded in 2010, led by the BBC, ITV and Channel 4 with representation on its working groups from Sky, Channel 5, S4/C, UKTV and BT Sport. In an environment of ever-increasing technical change, the broadcasters felt that they could help make the transition easier and accelerate the adoption of improved technology within the industry. Ultimately, the aim has always been to help everyone to enjoy the benefits, with less pain and cost.

Those goals are met through both technical work such as the development of common standards, and through our shared thinking, information sharing and change management, which help to make change smooth and effective.

The starting point for the technical work was to bring together the standards for tape based delivery into one common specification, and this was achieved in 2011. The UK broadcasters shared a great deal of commonality among their delivery specifications, so removing the differences that existed and collating the requirements into a single document was a logical first step. In line with the DPP's approach of taking on achievable tasks that deliver real results quickly, this immediately began to make life easier for producers who deliver to multiple broadcasters, and set the stage for the main act – a common file delivery specification.

## WHAT IS FILE DELIVERY?

File Delivery is simply the process of delivering a programme to a broadcaster using a file rather than a tape. In an industry that has used file based cameras, file based editing systems and file based playout systems for years – in some cases decades – it was surprising to many that we still relied so heavily on tape for programme interchange. The reasons are varied, and not as simple as they may first seem: delivery of a programme from a producer to a broadcaster is a contractual and technical transition point, and much of the way we do business has been built around it, as we'll discover throughout this report.

The challenges are also numerous. Only recently has there been any possibility that broadcasters, let alone production companies, would have access to the high-speed data networks necessary to transport such large files. At the handover point between different organisations, the security implications of moving files on computer links raise all sorts of concerns that don't exist with digital videotape. And of course there was always a great deal of reassurance in holding one's finished product in a physical form.

One of the most pressing concerns however was that, unlike in the world of tape where a handful of formats dominate, the permutations of file formats seemed endless. With different video codecs, audio codecs, bitrates, wrapper formats and metadata schemas to worry about, there was a real risk of each broadcaster devising their own particular combination with interoperability becoming nearly impossible. The DPP wanted to keep the simplicity and compatibility of the tape world by agreeing a file format that could simply replace the tape. The Advanced Media Workflow Association (AMWA) already had a file format that was used successfully by PBS in the USA (AS-03) so by joining forces with AMWA, sharing requirements and agreeing commonality, the DPP extended this format by adding HD and metadata, to create the single standard for delivery to UK broadcasters, now known as AS-11.

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## BUILDING THE FOUNDATION: THE TECHNICAL STORY

Making a change on this scale requires technology and process improvements throughout the content supply chain. Whilst on paper it's just the delivery point between a producer and a broadcaster that's changed, the reality is that the implications are wide-ranging. The community has stepped up admirably to this challenge, from producers to broadcasters, post production houses to vendors.

### Managing metadata

The AS-11 DPP standard calls for a file to include a set of information that ranges from the Series and Programme titles to the time codes of the programme parts. There's a synopsis, some identifiers, copyright information, contact details and more. And that's even before considering the technical information such as codec, aspect ratio and bitrate. Much of this information used to be recorded on a form such as a Video Tape Record Report, or VTRR, but including it in

the file itself is new. The benefits are clear – the file becomes self-describing, telling the recipient what content is inside and what technical parameters to use when playing it. So how do we get the data in there to start with?

While metadata is crucial to the broadcast industry, the wealth of information included in an AS-11 DPP file is a new challenge. Recognising that it would take software vendors some time to build this capability into their products, the DPP commissioned and released a free Metadata Application, which allows users to take a file with the correct audio and video formats for AS-11 DPP, and add in the metadata. Intended as a temporary measure to kick-start the switch to AS-11 DPP, the open source app has been a huge success, not only being used directly for file delivery but as a reference point for manufacturers in designing the same capability into their products. Many production and post production companies



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wouldn't have been ready to deliver these files without it, though perhaps counter-intuitively the DPP are pleased that its relevance is now waning: the thriving market for tools that can produce AS-11 DPP files – from edit platforms to transcoders and even cloud services – gives users much more choice and flexibility than a single application.

Even with the technology in place however, collating the metadata so it's ready at the right time and in one place turned out to be an area of great focus. Usually, a post production house will create the AS-11 DPP file on behalf of a production team, yet it's the producer who has access to the correct editorial metadata. From spreadsheets to web forms and advanced automation systems, the solutions for collecting this information have been varied, and many clever minds have been put to this task. The upshot is that, while the user interface may be different at different companies, the metadata that a producer needs to provide is consistent for any UK delivery. Quite an achievement.

## Controlling Quality Control

In the days of tape, most broadcasters operated a Technical Review process which involved specialists reviewing programmes on tape for both technical problems and more subjective issues. Such problems range

from illegal colours to blurry pictures, from loudness levels to audibility of dialogue.

With file based delivery came an opportunity to use file based tools that can automatically analyse audio and video signals for technical problems and make standards-based measurements. This ensures that the file will meet international standards and pass unharmed through the broadcast chain, leaving a human viewer to focus purely on the more subjective and editorial issues. As a result, Quality Control has now been divided into Automated QC and Visual QC – often called an 'Eyeball Check'.

As with metadata entry, approaches at different production and post-production companies have been different in some ways, but crucially they have a common baseline. While the BBC has encouraged its production teams to perform their own Eyeball Check, ITV has preferred dedicated Visual Quality Control operators; but thanks to the DPP's standards on QC and the *Producer's Guide to File Delivery* (see p. 16 below), we can be sure that the same basic checks are always performed.

Photosensitive Epilepsy (PSE) testing has become an area of concern for some, as the file based world has opened up the market for products that perform this test. While PSE

testing is a regulatory requirement in the UK, the guidelines are not always completely specific, meaning that different products interpret them as best they can and may produce slightly differing results when analysing the same file. Here again, the DPP has been able to take advantage of its ability to bring so many broadcasters together. By collecting and using test files from broadcasters, producers and post production houses, we have been able to confirm and publish a list of products that perform competent testing, enabling the broadcasters to accept files which have been certified with any of these products.

### Approvals and workflows

When one takes a step back and examines the post-production process objectively, it becomes clear just how much of our workflow has been built around the technology of the day. The primary editorial review, for example, is often conducted in an audio dubbing suite during the lay-back of audio tracks onto the tape. For

programmes that undergo a full dub, it's the sound supervisor, then, who produces the final deliverable.

So what do we do in a file based world? Generally, video editing software is better suited to re-combine audio and video than audio software, and that means the responsibility for producing a final deliverable sits back with the online editor. Furthermore, exporting a file from an edit suite is not a real-time process (it's sometimes much faster!) and the video cannot be watched as it happens. So where should that final review happen?

If we try to replicate old workflows, the new file based technology can make the process more time-consuming and costly than it used to be, and that's to nobody's benefit.

Finding the most efficient workflows can be difficult, and it's an evolving art form. What is certain is that file delivery provides an imperative – some might say an opportunity – to re-introduce some rigour to the approvals process. Until recently, technology



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has not allowed for “drop-in editing” of a file. If a small change needs to be made, the drop-in edit process allowed a small portion of a tape to be overwritten without touching the rest of the programme, whereas for file based deliverables an entirely new file must be generated. This means that a last-minute editorial change-of-heart or a spelling mistake noticed only after generating an AS-11 DPP file requires a new file to be generated, and a new quality control process must be completed. It's time-consuming, and some have found this out the hard way. Yet by carefully planning approval points in a workflow, and making production teams aware of the impact of making late changes, we can spot problems earlier and fix them sooner, resulting in a smoother workflow. By re-considering the workflow end-to-end, we're starting to see file deliveries become as well-understood and as quick and efficient as tape.

Moreover, technology is now catching up, and drop-in file editing is starting to appear, while file generation and QC times come down with newer hardware and software, reducing the impact of those rare late changes.

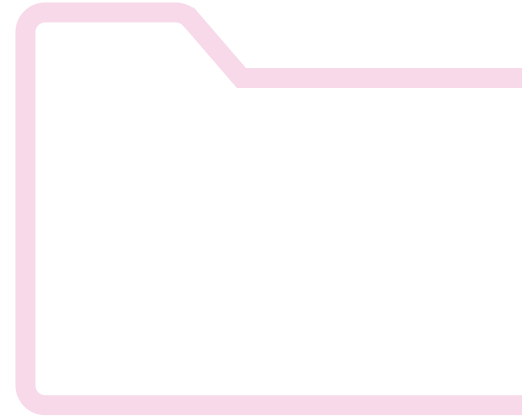
#### Receiving and processing files

The change has of course affected broadcasters as well as production and post production companies. Broadcasters have had to figure out how to receive these files, process them, manage them through the broadcast chain, and deal with exceptions such as a programme which needs to be re-delivered due to a late change.

Most of the broadcasters have turned to file transfer acceleration software as the primary method to receive programmes. An important principle has been that, while large suppliers might benefit from investing in such software, nobody is forced to: the BBC, ITV, Channel 4 and others all provide web-based accelerated upload sites at no cost to the programme producer. On receiving a file, broadcasters will use the included metadata in conjunction with a file naming convention to identify the programme and process it accordingly. They've also started to take receipt of the QC certificates, which show the result of the two quality control processes. For trusted suppliers, the broadcasters generally use these certificates as a

guarantee of quality rather than re-testing the file themselves. Some broadcasters do some level of file integrity or compliance checking – and the degree of this does vary – but overall there’s been a reduction in the back-and-forth between producer and broadcaster over quality control failures, as the producer receives a greater level of trust. The AQC tools and DPP guidelines for QC processes ensure that placing trust further upstream in the delivery process isn’t at the expense of basic quality levels seen by viewers.

Different broadcasters took the change at different paces, but all met the needs of the October 1st deadline. BT Sport, for example, launched in 2013 and worked to include AS-11 DPP in their workflows from the start. ITV underwent a transformation of its programme receipt, processing and delivery workflows in 2014 and was able to base much of this on the common file standard. The BBC meanwhile established a new team to ensure that producers had a smooth transition and clear points of contact as the change was enacted. Sky were early adopters of file based working, with some processes active before the DPP standards were ready, so they’re now continuing to work to align elements of their workflows with the other DPP broadcasters.



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### **Tools for change**

Having a common delivery standard is of course useless if nobody can produce or play back files meeting that standard. Therefore it was crucial that we had the required software and tools. Here again the power of combining as a whole UK industry became evident. Even a broadcaster the size of the BBC, ITV or Sky would have trouble pushing large international equipment vendors to spend time and resources developing support for a new standard. Yet when all of the UK broadcasters came together, with an accompanying market full of post-production houses and service companies, all asking for the same standard to be implemented, the request was heard loud and clear.

The benefit works both ways, of course. Every new feature or format added to a product takes development time and testing time, and that testing often has to be repeated with every subsequent update. So

if the UK market was asking for many new standards, the vendors would have to invest much more than for a single standard. There was perhaps some nervousness in the early days that having just one format might mean vendors lost a way to gain a competitive edge in a busy marketplace. What we've seen though has been quite the opposite; having just one primary format for the whole UK market has meant less overhead for vendors, meaning they can focus more effort on developing innovative new features instead.

As we'll discuss in the next section, it's not just the standard itself but the DPP's whole body of work that has helped here. Through interoperability days and the Compliance Programme, we've been able to work with vendors to ensure that products which support AS-11 DPP truly do work together. The efforts of vendors across the industry have been highly valuable, and have ensured that those who need to produce and receive AS-11 DPP files can do so with confidence.

## MAKING A STANDARD BECOME STANDARD: THE CHANGE STORY

The DPP had good reason to feel proud of mobilising all the UK's broadcasters – and many others besides – to agree AS-11 DPP as a common standard. But the moment that 1st October 2014 was announced as File Delivery Day – the day when all UK Broadcasters would take delivery of programmes by file – a far bigger challenge awaited us. This was the challenge of implementation.

In this section we outline the key ingredients of the file delivery change process. All of those ingredients are underpinned by a single guiding principle: communication.

Core to the purpose of the DPP is our ability to bring together colleagues from across the whole television industry. It creates some exciting conversations. But it is also a meeting of tribes that speak very different languages. So the DPP has learnt to tailor its communications to different audiences and different needs. And when it came to file based delivery that meant many different types of engagement – a magnificent seven in fact.

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## 1 The DPP Forum

The DPP Forum (pictured above) is the open meeting where the DPP communicates with the widest possible audience. It's an absolute rule of the Forum that we pitch discussion to the person with the least expertise. And it's amazing how much the more expert attendees learn in the process.

The go-live date for file delivery was announced at IBC in September 2013 – giving the industry 12 months in which to get ready. In January 2014 we held a DPP Forum designed to inform the production

community about the details of the file delivery process – although we knew many others in the supply chain would attend the session too. The format was a kind of 'speed-dating' experience in which senior technologists from all the major broadcasters explained each of the steps required for file delivery. This was the first time the process had been spelt out. We had spaces for up to 150 people and the event was over-subscribed within a couple of hours of being announced. It was such a success that not only was it repeated shortly afterwards but it was also taken on tour around the UK. The value of face-to-face communication cannot be overstated.

## 2 Publications

The work that went into preparing the Forum, and the feedback gained from attendees was natural material for a written guide – and this appeared in the form of the *Producer's Guide to File Delivery*.

Building upon internal change management work at ITV, the DPP's file delivery experts collaborated to create a definitive guide that not only spoke to the production community in a language it understood, but also became a common handbook that established best practice for all parts of the industry. It's no wonder it proved popular: how often have vendors and post houses been able to see how Broadcasters wish to communicate with producers – and what they choose to prioritise?

As file delivery day got nearer it became evident that producers were also beginning to worry about where they would now store their file based programmes. So the DPP this time turned to its experts on digital storage and archiving to create a beginners guide to the subject: *10 Things You Need to Know About Digital Storage*

Once again we created a report that spoke in everyday language, and yet was written by experts. And once again it gained an audience far wider than the digital novices for whom it was intended.

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### 3 Training

The BBC has a training division, The BBC Academy, which has the explicit purpose to help train the industry at large. Since the BBC needed to train its own staff in file based delivery, it was natural for the Academy to work with the DPP to ensure the training materials created were also useful to non-BBC staff.

This is a good example of how in some respects pan-industry initiatives are easier to implement than ones that are broadcaster specific. Since file based delivery involved a common standard, it was logical for the process of delivery to be standard also. So the BBC Academy was able to make use of existing DPP materials and expertise to populate its website and training workshops; and the DPP and the wider industry was able to benefit from the training modules created by the Academy.

The Academy's web-based resources gained 12,000 unique visits , and many months after file delivery day they still offer authoritative training resources freely available to everyone.

### 4 Post Production Workshops

When file delivery day was first announced there was considerable concern in the UK post production community about whether they – and their clients – would be ready. Post houses were clearly going to be pivotal to the file delivery process: not only would they literally be the people who processed the files and pressed 'send', but they were the ones who would have the closest relationships with producers undertaking this new process for the first time.

The relationship between producers and their post house colleagues is a very special one. There is an enormous amount of trust involved when any producer puts their precious output into the hands of others; and post houses take great care to respect and nurture that responsibility. To some degree therefore producers take the temperature on change from their post colleagues: if the post house is anxious it infects the producer; and equally, confidence from the post house makes the producer more relaxed about entrusting their most prized possession – their finished programme – to a mysterious and new non-physical process.



**Post houses were clearly going to be pivotal to the file delivery process.**

It felt crucial that the DPP and the post community should be in dialogue in the run up to file delivery, so bi-monthly Post Production Workshops were initiated. These sessions were a mixture of updates and information from the DPP, and issues and experience shared by post producers through their own case studies.

It is telling that the very first sessions were heavily attended, and revealed a significant degree of nervousness. With time however, confidence grew and attendance moderated. Nine months in – and three months before file delivery day – the UK post industry’s trade association, UK Screen, issued a press release reporting its members were ready for File Delivery Day. It was a remarkable change of atmosphere – and demonstrated once again that when the post production community has a clear deadline to attack, it delivers to it.

It’s worth mentioning that individual broadcasters also devised an ‘on-boarding’ process for their post house suppliers. This involved sending test files to check for successful receipt, and to clarify delivery procedures ahead of sending real programme material being delivered under pressure of a deadline. This activity was entirely separate from the DPP, but report-backs from individual broadcasters on the progress of their on-boarding activities provided a useful barometer of the change process.



**Three months before file delivery day the UK post industry’s trade association issued a press release reporting its members were ready for File Delivery Day.**



# Implementation of the standard in one device didn't necessarily mean it would work well with another device.

## 5 Interoperability Workshops

Perhaps the most compelling learning from the common file standard delivery process was that the implementation of the standard in one device didn't necessarily mean it would work well with another device. If anyone had any doubt about the complexity of the professional audio-visual media environment, and how difficult it is to create elegant interactions in complex technology ecosystems, here was the confirmation.

The DPP first began to run Interoperability workshops in 2012. These were open events for manufacturers and equipment suppliers to bring their equipment and test their compatibility with others. Interaction with these communities had already provided valuable insights which had informed the

definition of the technical standard, but this more co-ordinated forum allowed us to ensure that implementation really worked. And now that there was a standard to work with the workshops continued to provide an important understanding for both vendors and the DPP.

Indeed, one thing that became immediately evident was the need for a specific capability to test for AS-11 DPP compliance. And this led to the creation of the Compliance Programme and Test Lab.



## 6 Compliance programme & certification

Hindsight tells us that if there was one activity the DPP should have started earlier in its change programme it was its Compliance Programme and associated Test Lab. Only by establishing rigorous and standardised test procedures could a company be told that its product was genuinely compliant in its ability to make, read or analyse AS-11 DPP files; and only that way could those buying or using such tools be sure they had invested wisely in a device that was performing its function correctly.

In the event the Compliance Programme was established in Spring 2014, with a full time Test Manager, Paul Drewett, seconded from ITV's Technology team and funded by the DPP. The necessary test facilities, along with generous and crucial expertise, were provided by the BBC's R&D department who, much like the BBC Academy, were working to the general good of the industry rather

than the agenda of the BBC. Additional broadcaster funding for the programme was provided by BT Sport and BSkyB – which also ensured a steering group which represented a wide range of the UK Broadcaster community, commercial as well as public service.

Within a few months thirty-four companies had joined the programme, and begun submitting their products for testing.

Once products had successfully completed the testing process they were eligible for certification with AMWA as AMWA AS-11 DPP Certified. To date 13 products have been certified in this way, with more in the pipeline.

The feedback from companies engaged in the Compliance Programme has been very positive. Many have reported that they found it helpful to have the objective feedback of the testing process – and also gained from the insight of the team of experts.



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# Undertaking a brand new business process feels far less scary if you know that other major broadcasters are doing the same thing at the same time.

## 7 Broadcaster Collaboration

It may seem odd to some that the BBC, ITV and Channel 4 as individual broadcasters can be separated from the DPP – which is funded and run by people from BBC, ITV and Channel 4! But in fact there is a clear distinction. Each broadcaster has its own distinct policies and procedures; and its own people who, while involved in file based delivery or other DPP-related activities, do so on behalf of their broadcaster, not the DPP.

So when it came to file delivery day the DPP facilitated a monthly meeting of the file delivery teams of the individual broadcasters. These proved invaluable in sharing best practice, solving common problems, and ensuring the user experience for those delivering programmes by file was as consistent as possible across different broadcasters.

Broadcaster collaboration had another benefit: it gave confidence in the process to senior stakeholders in each of the broadcasters. Undertaking a brand new business process feels far less scary if you know that other major broadcasters are doing the same thing at the same time – and doing it successfully.

## So did these seven change streams work?

It is difficult to think of another time in UK broadcasting when a significant business change has been instigated by everyone at the same time. But it may be precisely this universality that made the transition to file delivery sufficiently smooth for Broadcast magazine to run the headline ‘No Hitch with Digital Switch’ on 2 October 2014 – the day after File Delivery Day. The process of file delivery involved all parts of the supply chain – and no one part had any interest in failing to deliver. Furthermore the simple statement by all UK Broadcasters that they were now taking delivery by file made it clear to everyone that investing in change would be worthwhile.

Did it really go without any hitches at all? Of course not. While at the high level it is true that the process has been remarkably smooth, it’s always a slightly different story at the coalface.

So to bring out some of the real-world experiences of file delivery, we asked some DPP Members to share their experiences:

## CASE STUDIES

# DONNA MULVEY-JONES

## MAVERICK TV

The switch to file based delivery is still noticeably staggered; I would say around half of our content is still being delivered on tape. At the moment that does feel slightly confusing as we've now added yet another deliverables option, so it will be good when all broadcasters are ready to be fully tapeless – although it has been useful to get used to this change through a more gradual transition. We however do a lot of programming for Discovery, London Live and History Channel who are all accepting file based delivery with the DPP Metadata, but not as an AS-11. That has caused some confusion (and surprising cost for multi channel deliveries) to the production teams, many of whom think file based delivery and the AS-11 standard are one and the same thing.

Many things are still a work in progress – which master items to keep, the format to archive on, which archive or asset management system to find it, and what viewing copy will replace the old DVD. Not every company and post house are doing exactly the same thing, though this will become more standard over time I'm sure. It's definitely added something extra to think about for the content owner. There is also some new investment required around this, which has proven a little tricky with so many new solutions popping up. We want to implement a system, but we don't want

to invest until we're sure we've got the most suitable and cost effective solution.

We've spent a lot of time trying to prepare and educate our teams for the arrival of file delivery. It did feel that the best training of all though was just experiencing it for real. There is enough technical experience around now that the file creation was the most straightforward part.

There is a lot of talk about PSE fails with some of the AQC software – but at the moment we're still using Harding and outsourcing this part of our process so haven't felt much impact on that. In terms of cost, on the surface tapeless looks cost neutral to tape. However, on those occasions where we've had to make changes costs can become much more than they would have been on tape. The slightly new sign-off workflow has impacted this. Due to fear of taking responsibility, the final AS-11 is being sent back to Producers to look at one more time – something that never happened with tape. Despite this not being an editorial sign off, it just inevitably gives another chance to spot things that Producers may want to change.

The teams do understand this change is happening and there isn't resistance as such. It'll just take a few smooth runs under people's belts before the dread goes.

**It did feel that the best training of all was just experiencing file delivery for real.**



## CASE STUDIES

# DAVID KLAFKOWSKI THE FARM GROUP

File delivery happened six months ago. Only six months? you ask... It feels like a lot longer to me! So how is it going?

Well, the complete confusion we all faced at the start is calming. In the best cases confusion is becoming acceptance – even enthusiastic acceptance. In the worst cases there is still stubborn flat refusal to change. So why such a wide spectrum of feelings?

Change. It's as simple as that. I recall non-linear edit suites (such as Avid) being used as mastering devices for the first time some 14 years ago. The outcry from editors and clients alike about the additional time it took to load all the media, render the effects and then play it out was deafening. For some time there was a feeling that the linear edit suite (where a master tape is compiled from the original source content directly, in a linear way) would always be with us. Yet eventually we stopped using linear suites, because advantages of a non-linear edit began to outweigh the disadvantages. The most obvious of the advantages was the ability to change your edit right up to the point the show was actually mastered to a tape and delivered. The concept of a "locked" edit became a very loose term; the edit became more "ajar" than "locked" right up until it was actually on a tape and in the hands of a courier. This is where one of the biggest concerns comes in with

file delivery: without the "ritual" laying off to a tape, there is a genuine fear that the show isn't actually finished. So how are we getting on weaning these tape junkies off their habit?

Well The Farm Group's answer to this is a resounding.... "not too bad"! We have spent a huge amount of time, effort and most importantly money, re-educating ourselves, designing then refining workflows and adding a mind bending amount of very fast and extremely expensive storage to our group production network. After all that, we still can't make an AS11 file ready for delivery as quickly as we can a tape, and I doubt we'll ever be able to. But one thing I can promise is that we will stop delivering tapes one day, even for late deliveries. And do you know why? Because the advantages will start to out-weigh the disadvantages.

As a business, the issue with all this refinement and streamlining is that we are busy removing all the "extras" that a facility is able to charge for: the DVDs, the clones, the striped stock; all of which enables some facilities to stay in business. Then why make the crazy decision to assist removing them? The answer is really quite simple. We have had to educate both internally and externally, and make it clear that it is the processes we charge for, not the media they were historically delivered on. The problem

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**Without the “ritual” laying off to a tape, there is a genuine fear that the show isn’t actually finished.**

## CASE STUDIES

### DAVID KLAFKOWSKI CONTINUED

we have at the moment is that we are in a transitional phase, and production companies and broadcasters are requesting “hybrid” deliveries that involve both traditional tapes, DVDs plus the new AS-11 DPP files. It costs more, simply because we’re doing more and it will continue to cost more until the tapes, DVDs and couriers disappear. When they do go (which they will!) these “physical” costs will be replaced by cloud storage and data delivery. The delivery and mastering process of creating TV content may never actually get cheaper, but it does continue to get better.

There’s still more to do, of course. Broadcasters must continue to update their delivery requirements, removing the DVDs and tapes that many still require in addition to files. We need more clarity on what the production “eyeball” check needs to involve and where in the process it can be done. And we need to be clear that the AS-11 DPP file is a delivery master, and production may need to consider an additional mastering format. It would be great if there was uniformity in the way AS-11 DPP files were named, and there needs to be some more work done on the multi-parting specification.

**The delivery and mastering process of creating TV content may never actually get cheaper, but it does continue to get better.**

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## CASE STUDIES

# DAVID HORNSBY

## ITV

The DPP standard and guidelines are primarily focused on helping the production and post production community in making file deliveries into UK broadcasters. However ITV has seen tremendous advantages in the way it processes content for linear and non-linear distribution by extending the standard throughout many of its internal workflows.

In September 2013, in preparation for the coming DPP file delivery switchover and as part of ITV's Content Delivery Modernisation Project, ITV started to migrate away from providing MPEG2 MXF and video tape to its transmission provider, in favour of the AS-11 DPP standard.

Over time, led by members of ITV's Broadcast Operations team that were part of both the CDM and DPP initiatives, ITV increased its use of the standard by using the same AS-11 DPP master files for all catchup and archive transcoding.

Now ITV are at the point where 100% of all transcoding for distribution is carried out in-house through systems that are delivering anything up to 200 DPP Master files for transmission each day. Last December saw an incredible 94% file delivery into transmission across all content types (excluding late and live content).

Using the DPP standard in the internal ITV MAM system also made testing new workflows and transcodes much more efficient – the system only accepts DPP files, meaning that any regression testing was limited to a small number of variants. ITV has been able to use the DPP metadata to great effect in conjunction with our own metadata schemas. We use a sidecar XML file internally, ensuring that metadata can be sent to transmission much faster upon a modification. We use the DPP XML format for this, but create the sidecar ourselves to avoid having to ask producers for it. In addition, over the past five years ITV has developed a rich metadata standard around timecodes that it uses to reversion content automatically, which is now appended to the DPP XML, giving us the best of both worlds.

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**ITV has seen tremendous advantages in the way it processes content for distribution by extending the standard throughout its internal workflows.**



## CASE STUDIES

# SIMON BEGENT

## VIDCHECK

The last six months has seen a rapid transition in the UK to file based delivery and expansion in the use of AQC. Previously only really affordable for broadcaster enterprise solutions, AQC is now under the DPP recommendations being increasingly used at all stages in the content supply chain including not only at large broadcasters but also many small production and post-production houses. The responsibility for QC and getting it right has been pushed by the broadcasters back to their content suppliers.

Vidcheck design our products to make the process as simple as possible. For example, a single check box enables the file's AS-11 UK DPP Shim to be thoroughly checked without the need for the user to make complicated setups or understand the complexities of MXF file structures and metadata.

While particularly beneficial to the UK broadcasters at the end of the supply chain, QC has been an intensive and to date costly process for content providers and product vendors. As a UK based international supplier we have had to develop to the DPP requirements and go through DPP lab certification at the same time as working on requirements for other countries and many other file delivery formats and standards. The success of the DPP has been the open collaboration across the UK broadcast sector. It has been a good partnership bringing together vendors, production and post-production companies and broadcasters for open discussions for the common good of the industry at events in different parts of the country.

**Previously only really affordable for broadcaster enterprise solutions, AQC is now under the DPP recommendations being increasingly used at all stages in the content supply chain.**





**Only with the extension of file delivery and exchange will all that time, money and effort become truly worth it. But then it will prove invaluable.**

The investment of time, money and effort in achieving the implementation of the AS-11 DPP standard in the UK has been considerable. Every part of the supply chain can rightly claim it was crucial to the success of the implementation – since without the cooperation of every part of the supply chain it simply wouldn't have been possible.

If file delivery to common standards stopped here, however, then the investments that brought about File Delivery Day in 2014 would start to look extravagant. The irony is that only with the extension of file delivery and exchange will all that time, money and effort become truly worth it. But then it will prove invaluable.

All UK Broadcasters are now commissioning all new content as file deliveries. So videotape will rapidly disappear from day to day operations, and become a format only

associated with pre-2014 archive. But the UK is alone in operating to a common delivery standard; and media is now a global business. Only the international implementation of a limited set of compatible file delivery standards will make serious inroads into the current cost and complexity of multi-format delivery.

And then there's Ultra High Definition – and whatever other formats will come beyond that.

File Based Delivery in the UK on 1 October 2014 will come to be seen only as a starting point: the moment not simply when the UK removed videotape from its programme delivery processes; but when the industry began to enable the full potential of digital by working together to deliver its huge potential for exchange, efficiency and elegance.



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