



Having shared storage is brilliant for us

Northumbria University is a research-rich, business-focused professional university with a global reputation for academic excellence. It is based in the heart of Newcastle upon Tyne in the North East of England, which is regularly voted the best place in the UK for students.

Alexander Harbord, Technical Support Manager in the Faculty of Arts, Design & Social Sciences at the Northumbria University, about the benefit of DDP.

Alex, may you give us a brief introduction about the Faculty of Arts, Design and Social Sciences?

The Faculty of Arts, Design and Social Sciences contains approximately 4000 students. The faculty covers a diverse range of courses throughout the Art, Design, Social Science and Humanities subject areas. We have a lot of programmes that involve the use of digital media within their learning outcomes, for example Film and TV Production, Advertising, Graphic design, Fine art including fine art photography, animation etc. All the students on these courses are the key users of our DDP.



Faculty of Arts, Design and Social Sciences

What's your story with the DDP?

When I moved to Northumbria a new DDP was installed for 40 workstation Media Lab. I was pleased as I knew the product, how it performed and how to administer it which really helped.

What can you tell us about the first DDP installation in 2011?

Initially the faculty needed something that could cope with all the pressures of the different types of media that we use across our courses, and to work with a variety of software. At the time we were using Final Cut Studio, the full Adobe Master Collection and Pro Tools across 40 Apple workstations. The initial specification was enough bandwidth for five streams of ProRes per workstation. We had to be confident that all workstations could be using media without any implications. It was great for us to have the DDP installed and go through that process, see the testing, see the bandwidth throughput, knowing that we could cope with Raw photo processing on one machine, color grading on the next machine, video editing on the next machine and so on all in one environment. It also meant that we could have all our teaching materials in one location when the students log on, so we could point them to the right place and they could bring any example Media in during technical instruction sessions.

How has the DDP installation evolved since then?

The DDP has evolved along with University strategy. In 2012 we merged with the school of Design to be the Faculty of Arts, Design and Social Sciences. This brought with it more logistical challenges. Some of the Design courses in particular, Graphic Design, used a pool of laptops with limited resource for saving media. After seeing how we operated already there was a

desire to work in a lab environment more suited to software demonstration. They were using Photoshop, Illustrator, InDesign, most of the Adobe packages. We saw this as an opportunity to expand on what we had and in 2014 we built another lab with 26 Mac workstations and upgraded the DDP to ensure we had no impact on bandwidth with the extra clients.

How many workstations are connected to the DDP now?

We have two main Mac labs connected to the DDP, with 40 workstations in one room and 26 in the other. What's great is that students can start to work in one room and move to another workstation or another room to continue working.

How many students do need to get access?

Currently, I think we've got about seven to eight hundred students on our user list. In theory the whole faculty could use the system and we can add them really quickly. That's why we like the customized elements that Ardis [manufacturer of the DDP] has integrated into our system. As the students go through every year we have a year one, year two and year three of each course. Every year the new students arrive we can promote the students up a level and add the new first year. The number of students is consistently growing, so...

Which is good!

Yes, which is brilliant!

The university is always looking for more student satisfaction.



Can you tell us more about the customized elements that Ardis has integrated into your system?

Ardis created an amazing automation script for us. We can create a list of students and the course they are on from our university systems in a text file. When we pop this on to our Interface drive, it automatically creates the User, the Folder Volume, Quota and groups the students by the course they are on. This is brilliant, we don't have to sit there and manually add hundreds of students a year which could take weeks. After that our students can just log in on any of the machines using their standard university ID which they use for any machine and their drive appears on the desktop and they can carry on and work.



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So there is a Folder Volume for each student?

Yes, every student on the system has their own Folder Volume and depending on what course they're on will depend on how much quota we give them. We are finding a lot of our courses are using video, even ones where you wouldn't expect it are really starting to use the facilities.

We find our performance courses may have a 60 GB folder quota, where our Film and TV production students may have 200 GB or more.

We found we can afford to give the students pretty much whatever space they need. Due to bandwidth we require, the amount of storage we have is huge. We have never had an issue with the storage capacity of the system. We cope with really small projects and if needed we can just increase the initial quota of the Folder Volume along the way. It's fantastic.

What is the current size of the DDP?

It is about 290 terabyte. We got three of the 60 TB chassis and then we've got twelve 16 TB chassis.

What are the general requirements for the DDP?

The key thing for us is that the students have a place to store and use their media on a system that can cope with post production. We have a lot of students completing a lot of video and photography work and we recycle our camera memory cards. They are documenting a performance or working on a big production with lots of media, but we need to make sure all students have the facility to complete any project required as part of their course work.



And keeping it safe...

Exactly, students often use external hard drives to transfer media which has caused no end of problems. They are often left unprotected in the bottom in bags for months and transported without care. We have seen many external drive failures and damaged connections resulting in data loss. However it's fantastic for them to have dedicated, fit for purpose drive space within the university, that's safe and secure with redundancy built in. Students know that they are working on the system, all their media is going to be there. Also our technical staff uses Archiware, in conjunction with the DDP backup our critical data to another server and LTO tape which really does add an extra layer of protection.

How many students can work on the DDP at the same time?

The maximum possible at the same time would be the two labs together, so 65 students at a time. For a lot of the time in the labs we have demonstration classes, so the technical team that I manage does a lot of the demonstration on the software the students may be using. So you might have in one lab a group of 25 students going through DaVinci Resolve and in the other lab down the corridor you might have another 25 students learning Pro Tools. The key for us is that knowing whatever is going on in the labs, we would not have any performance issues.

When the timetabled demonstration sessions are finished, our labs are open for anyone to use, until 9 most nights so the students can work late if they need to: they've got all their media there.



Can you explain how students benefit?

Before we had the DDP, we just used the internal storage of the Mac Pro Workstations for students to store their work on an extra internal hard drive. This would cause a variety of issues as students had to continue working on the same workstation. They would often come into the lab and find another student on the machine they were using, or it had been locked by another user, so they were not able to continue work. Also they were forever copying or duplicating material around different computers in the lab to make sure they could continue work and struggled to prevent some deleting their work if the internal drive was full. It was really a problem.

Now everything is stored on the DDP allowing the students Folder Volume to be mounted on any of the machines. The beauty of having the two labs, is that if there is the demonstration class going on in one room, the students just can move down to the other lab and continue from exactly where they had finished before.

It really helps a lot, particularly because a lot of our students do work in groups to make short films. They have an editor, a producer, a camera man, a director etc and they all tend to come into the lab for the post production. It is feasible for one student to be viewing rushes, whilst another is editing. Going forward through the post production process, someone can be doing the grade while someone else could be doing an audio mix.

All of this collaborative workflow make many creative things possible within tight deadlines.



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What challenges are you going to face at the moment?

From our point of view we're constantly seeing other areas around the university where we feel we need something like this in place. For example in our design building, students on Fashion communication courses do a lot of photography work. Other Design courses are doing a lot of video work as well. The building is currently in the situation that we were five, six years ago. They're on standalone machines and they're all saving media to a university network drive which cannot handle the bandwidth for what they're trying to do.



Lots of our students really start to push the boundaries of our technology. For more and more we see that fine art students are really getting more into this sort of technology, wanting to do things in 4K and VR and all that kind of stuff.

We never would have stepped forward originally in that environment and update them. Now we can. So it could work with their confidence in our equipment and our team, that we can provide what our students are looking for and that, again, for us is a good way to keep them satisfied. And student's satisfaction is key for the whole university and education sector. A lot of education in university is so around international student surveys and they put the university to be ranked on those. The higher you are the more students are attracted to come to you.

How can DDP help to solve these challenges?

The good thing for myself and for my team is, that when we come to events like BVE, we see everything, chat to yourselves and see the developments you've made. I can instantly see that's a real benefit to us and the university. So for example, if we needed to provide storage to another department, we could see how we could upgrade our system to add more storage in another building and have it all connected together using new feature like Load Balancing and Caching.

For us it's good to see your vision and where you're heading and how this fits in with a lot of the work that we're trying to do. There have been several features that are key to our operation that have been bespoke requests.

And the workstations, they are currently connected with a 1GbE connection?

Yes, it's just 1GbE. They're all high spec iMacs connected by a Thunderbolt to Ethernet adaptor, so we've got a two network connection on them. The main Ethernet port is for the university campus network and then the DDP in on the adaptor, so that's brilliant.

Some students work on the DDP with compressed 4K which is in line with our current bandwidth requirements. We are starting to work in 4K in on our Film and TV Production course as we have three Sony F5 cameras that can shoot Raw 4K.



What are your future plans for DDP?

Moving forward we would like to expand the network to other areas. Using some new features may benefit our future plans. For example we could consider upgrading some of our current storage with SSDs to allow SSD Caching or create a Cluster by adding microDDPs in other areas. We have even discussed the potential of loaning out a microDDP from our resource centre to be used for on location storage, before bringing it back to campus and connecting it as a Cluster for the media to be used on site.

So, in brief: Why a DDP?
We have always had a good experience with the DDP.
It is fast, reliable and adaptable to our needs.

*Eric Joseph of Mediaspec - DDP Scotland, UK:
"Growing their shared learning experience through DDP shows intelligence and vision on behalf of Northumbria University, allowing students to collaborate in a fast and flexible environment with a stable and proven technology like the DDP. They have chosen a system that can grow at the same pace as their evolving requirements. We wish them all the best for the future as they continue to grow and develop the fantastic learning support they provide to their students."*

