Proposal for Upgrades to School IT Infrastructure

The Academic Council of Barnard Castle School

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1 Executive Summary

Barnard Castle School risks slipping further and further behind in it's IT infrastructure and policy. Without a clear and decisive plan, this risk will become a reality, putting the school at a practical and commercial disadvantage.

For years, other schools[1] have been upgrading their equipment, and building extensible infrastructure whilst we have lingered with a proprietary, inflexible, and expensive system of computers upgraded piecemeal or not at all.

The school's current systems and infrastructure is insufficient for current needs, and will not scale to meet the future's either. There needs to be a greater focus on creating a more sustainable and flexible policy that will scale with the school, it's students, and their teachers, into the future.

We the academic council, and all the members of the student body who have signed the attached petition, propose that the school focuses it's resources on building a secure and flexible network environment which allows users to connect to the internet, each other, and school resources in a controlled and efficient manner. Such a network would include WiFi access to everyone, on their own laptops and other equipment, and hopefully an upgrade

By being allowed to use our own equipment, we believe that an open network will aid communication and learning amongst the staff and students, and that by applying less direct restrictions the experience of using a computer in the school will have less friction and probably even cost less in the long term.

The methodology and software exists, is mature, and is well-tested. This has been attempted before, successfully, in many other environments and schools. BCS will not be alone in stepping into the future.

[1] Sedbergh School

2 Rationale

If, rather than concentrating on having enough computers for people–which we never have, due to a substantial proportion of them being broken, in some way, at any one time–we instead build a network that allows people to attach their own equipment, be it a laptop, tablet, or e-reader.

Specifically we propose:

Wireless internet and network access for everyone.

School accounts to remain for file storage, printing and email, and for the use of the remaining school computers.

Faster internet connection for the school.

The school currently spends a great deal of money on a patchwork of ICT service contracts, leases, and software licences. Much of the software we pay RM for is freely available by design, while we pay a huge deal for the privelige of having their badge on commodity components. In addition, our current system requires a great deal of upkeep relative to what we pay for it all. In buying so much of our infrastructure pre-assembled (poorly) from a third party, we have ended up with an overly complicated and expensive system.

Boarders are unable to remain in contact with their parents nearly as much as at other schools. If Skype and internet messaging services are free, why would they pay for international phone calls? At the same time though, students must sit in their housemaster's office to have private conversations with their relations. This is a less than ideal situation.

Those who want unfettered access to the internet (i.e. all of them) are able to gain it quite easily, using a 3G dongle or simply walking to the NEST cafe down the road. By giving them partially restriced access to the internet, they are unlikely to spend much more energy or money getting at the small part they can't access in school.

The school email system is used heavily by the staff, and is very useful, but almost no students use it, or even know it exists. The ability to store files at school is a useful one, as is accessing them from home. But the amount of space offered is pitiful in this day and age, and it is impossible to log on through the internet access feature. Pupils log on at school primarily to use the printers, which are a tremendously useful resource, but apart from that, most prefer to work at home as much as is practical.

Software at the school is often out of date, and therefore insecure. Internet Explorer on the computers is the primary offender, as not only is it a known attack vector for harmful programs and crackers, but it is slow and prone to crashing, taking a student's work with it. Because of misconfiguration, the homepage for most of the school is set to the security software's website, and many don't know how to get back to the intranet page. UCAS login is inaccessible outside of M Block because of misconfiguration, too. Memory Map

(used for Duke of Edinburgh's Award groups) has disappeared from the school's computers.

Equipment upkeep is poor. Outside of the M Block (or even the technicians' eyeline) the state of the computers quickly declines to be near unusable. 'Warm-up' times can exceed five minutes. Ports, keyboards, or screens might not work, or entire terminals may refuse to even turn on. Students feel little need to look after equipment that A) is not theirs, and B) doesn't usually work anyway. The purpose of ICT is to enable people to work and communicate faster, not to impede and distract them as it often does now. The computer rooms under the direct jurisdiction of the technicians are as a rule well-kept, but the space in Main School could be better used for other purposes–a student meeting room perhaps.

The complexity of dealing with all of these problems is too much for such a small IT team to handle, and a larger one cannot be justified in a school of this size.

To deal with this, Barnard Castle School's infrastructure can be simplified so that it is better adapted for how it is actually used, whilst being more readily expandable for the future.

3 Methodology

As previously mentioned, none of the systems required are new or even experimental. They are well-tested and used in diverse and challenging situations.

3.1 Faster Internet Connection

This is the easiest part of the proposal to implement, and could be dropped into the current system wholesale, with no further changes. However, as you will already know, this is likely to be very expensive.

This involves the school paying to lay it's own cables to the nearest exhange to guarantee fast access.

If the school were to approach other businesses in the local area (specifically NEST Cafe) then it may be able to share the costs and the benefits of the improved infrastructure with the local area.

The advantage of laying our own lines is that not only is it a simple upgrade for the entire campus, but it will future-proof the school with regards to internet access, putting us at the forefront of technology for the foreseeable future.

3.2 Wireless Network and Internet Access

3.3 Email, File Storage, and Printing