

Case Study

Historic School provides secure, seamless Wi-Fi to students to enhance learning



The King's Hospital

Technical Specifications

- Fibre optic connection to the school
- 20 x link aggregated fibre optic circuits
- 70 x EAP220 N600 Wireless Gigabit Ceiling Mount Access Point
- 1 x T3700G-28TQ JetStream 28-Port Gigabit Stackable L3 Managed Switch
- 3 x T2600G-28MPS (TL-SG3424P) JetStream 24-Port Gigabit L2 Managed PoE+ Switch with 4 SFP Slots
- 6 x TL-SG2210P 8-Port Gigabit Smart PoE Switch with 2 SFP Slots
- 1 x TL-MC1400 14-Slot Rackmount Chassis
- 16 x TL-SM311LM MiniGBIC Module
- 14 x MC200CM Gigabit Multi-Mode Media Converter

Fibre Optic network installed to deliver Wall-to-Wall Wi-Fi

The King's Hospital in Ireland, is a leading Church of Ireland governed, co-educational, Secondary School for boarders and day students, attracting 20% of its 300 boarding students from overseas. Its historic 80-acre campus is made up of a central building and many additional buildings, added over the years. Offering a broad academic curriculum and a wide range of extra-curricular activities, the school recognises the importance of academic and pastoral excellence to ensure its students' future success.

Scoping the Project

As part of its regular review process, The King's Hospital and its Governors recognised the importance of online learning resources for class-based and self-directed learning, and to ensure that all Staff had Wi-Fi access for school communications throughout the day. Among its overseas student cohort, communication with friends & family was also flagged as a critical piece of the pastoral tool kit. Located in a rural setting on the doorstep of Dublin City, The Kings Hospital's location has little 3G or 4G coverage, and accepting that 9/10 teenagers own a smart phone, the Board of Governors decided it was the school's responsibility to provide students with free Wi-Fi whilst on site. Identifying high speed, secure and seamless Internet connectivity as key objectives, The King's Hospital was also very clear about its Parental Duty of Care and ensured that content filtering was an integral part of the solution. With these clearly defined objectives in mind, The King's Hospital commissioned a TP-Link Partner to

undertake a network site survey to establish the size and scope of the project.

The site survey provided a clear understanding of the infrastructure and services required to achieve the school's goals. This gave a clear basis for budgeting and prioritisation. The survey clearly highlighted the necessity for a high-speed Internet connection to the school to provide an extremely reliable, high-speed service to all staff, students and visitors.

Under the scope of the project, the Partner oversaw the installation of a well-developed fibre optic back bone, capable of reaching all the core locations. Locally, within the campus, Category 6 cabling was installed to provide connectivity to each TP-Link dual-band wireless access point (EAP220). The Partner also installed 20 link aggregated fibre optic circuits to provide a 2Gbps back bone to power the wireless network.

4 It was interesting to note that when the Wi-Fi was first installed students no longer talked to each other in the dining hall, they were all on their mobiles. While social media is a very important part of today's life-style, interacting with peers is vital too. So, to encourage discussion and chat, we disable the Wi-Fi in the dining hall between 12:45 and 14:00. The software controller made it so simple to do and it has made a massive difference to the volume of noise during lunch time, and more importantly to the sense of community within the school. **7**

Tony Kearney, Head of Finance & Operations, The King's Hospital

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TP-Link Infrastructure

Features within TP-Link's T3700G-28TQ switch, enabled the Partner to deploy a number of VLANs across the network to power the access points and comms cabinets, in order to deliver an infrastructure capable of providing 16 SSID, a key requirement for King's Hospital. Not all the 16 available SSID are in use, the school has identified key network user profiles including; students, visitors, teaching and admin staff. Providing these groups with individual networks enables the school to deploy different operating criteria depending on their needs. Using TP-Link's free software controller, the Partner customised each SSID within a week after the initial hardware installation. It made it easy to put different time restrictions on specific networks and apply different levels of content filtering appropriate to the user aroup.

Flexible SSID Management

From the outset, the students' network is only available during the hours of 07.30 to 22.30, and content filtering has been applied, whereas the staff network is available 24/7 with some restrictions. The software controller made it easy for the Partner to customise the network to the school's specific requirements. For example, for Health and Safety reasons the access point in the Pottery Department is disabled when the kilns are in operation. However, via the software controller, seamless internet access can be restored within moments.

Student Security

To underpin the safeguards applied to the student network, the school uses MAC binding so only pre-approved devices can connect to the network. At the beginning of each term, it's the student's responsibility to take devices to the IT department to have them added to the register. There are currently more than 900 approved devices on the register, of which on average of just over 400 connect at any one time each day. With a capacity to connect more than 4,000 devices to the dual band network, there is plenty of scope for growth. Deploying MAC binding enables the school to monitor individual devices and filter content. Not only does this add an extra layer of security, it enables the school to proactively disable access to unsuitable content. This feature gives the IT department the tools to identify who is accessing the network, when they are using it and which services they are accessing. The King's Hospital decided to adopt a process of evolution to the list of permitted content. At the outset, staff were asked for a list of regularly accessed content provider sites used for classroom and self-directed learning and over time staff and students have organically grown the range of permitted sites to support learning and communication with friends and family.

For students, particularly ones from overseas, often away from home for the first time, regular communication with friends and family is particularly important. Without support from familiar faces, it can be difficult to settle in, which has a negative impact on the learning process preventing the child from reaching their full potential. "Students consider social media and instant messaging an essential part of their daily lives. A recent report found that more than 87% of children under 13 have a social media account and by the age of 18, 98% of children have at least one social media account. This demonstrates how important connectivity is and now we can provide a safe environment for children," said Mark Deane, ICT department, The King's Hospital.

Outdoor Wi-Fi

King's Hospital does not intend to stop there. The next phase in its connectivity plans include extending Wi-Fi to the outdoor spaces within the campus, in particular the sports areas. TP-Link's outdoor access points provide the same level of seamless roaming as the indoor versions and can be configured and managed by the same software controller. The Partner is currently investigating the feasibility of a local fibre optic connection to the back bone.

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