AIT Wireless LAN infrastructure supports 'Learning Through Landscapes' initiative at The Coombes CE Primary School

The Coombes CE Primary School, based in Arborfield near Reading, has 552 pupils covering the entire pre and primary school age range from 3 to 11. Set in the Berkshire countryside the school was originally founded in 1873 as Arborfield CE Junior School, but was renamed to The Coombes CE Primary School when it was amalgamated with Arborfield, Newland and Barkham CE School in 2008. The original 'Master's House' still survives, now occupied by the school caretaker.

The school continues to play a central role in community life with its countryside setting providing a special focus on outdoor activity, blending the natural environment with the modern curriculum to enthuse and interest students. One of the founder schools for the Learning Through Landscapes Trust, The Coombes is nationally and internationally recognised as a pioneer and leader in environmental development and education, using the extensive school grounds to support the whole teaching programme. Today the school welcomes over 1,000 visitors a year to learn how to use the surrounding landscape within a leaning environment.

The Challenge

The Coombes school required a secure wireless network providing access to all staff and pupils across a large geographical area with availability in all classrooms and buildings throughout the school.

There were several reasons for the school's decision to build a wireless network including; the provision of mobile ICT in the form of a pool of wireless enabled laptops that could easily be used in any classroom and connecting devices brought into the school by staff, pupils or guests to a managed secure school network. Known as Bring Your Own Device (BYOD) this capability has become one of the main drivers for the adoption of secure wireless LAN solutions in all sectors, especially in education.

To help identify the right solution and establish the key technical criteria for the school AIT used a three step process:
1.   Information gathering – floor plans for each site were obtained from the customer and annotated with the existing infrastructure design.

"AIT helped us to define and install our wireless network to give us the coverage we need …. to teach and learn anywhere," said Simon Parker, IT administrator, The Coombes CE Primary School

2. Site survey – AIT wireless engineers surveyed each site measuring signal loss through the walls, floor and ceilings. Some of the older buildings had thick walls and other obstacles which attenuated signals and had to be allowed for.

3. Planning – AIT used their extensive experience and software planning tools to design the wireless network and determine the best location to install wireless access points (APs) for optimal coverage.

The Solution

AIT recommended an Aerohive controller-less wireless architecture to reduce costs, eliminate single points of failure and make it easier to expand the network in response to future demands. AIT installed 27 Aerohive Hive120 APs across the site, providing ample bandwidth for mobile ICT equipment and the future BYOD needs of the school. The HiveAP120's support 802.11n via a 2x2 MIMO interface to provide reliable high-bandwidth broadband access for users. The dual band radios support 2.4GHz and 5GHz and also provide backwards compatibility to legacy 802.11a/b/g interfaces.

The Hive APs are organised into groups, or "Hives", to create a controller-less system. The Hive shares control information between the APs and enables functions like secure and fast L2/L3 roaming, coordinated RF management, security, QoS, and mesh networking. They are configured via an online HiveManager, either hosted on-site as a virtual machine or remotely on-line. The system administrator can setup SSID names as needed to provide differing access rights and resource for staff and pupils, and control secure access to the network. Guest access allows visitors to instantly connect to the web and access information in the cloud as needed.

The Result

The planning and expertise of AIT ensured that the solution was installed quickly with a minimum of disruption to provide a low cost, yet highly secure and resilient solution that is easy to expand. A principle reason for The Coombes School selecting AIT was their expertise and understanding of the requirements. A key part of this process was the selection of Aerohive technology with its ability to automatically select mesh mode to keep the network operational even when APs are detached or broken. Being a self-healing controller-less system it is more flexible than other solutions that require a controller to re-configure the system.

Plans are already in place to extend the wireless network outside to the pond area in the grounds of the school, allowing the school to continue its proud tradition of working with nature by allowing pupils and staff to use iPads and other devices outside.

"AIT helped us to define and install our wireless network to give us the coverage we need," said Simon Parker, IT administrator, The Coombes CE Primary School. "A wireless network gives us the flexibility to teach and learn anywhere. Bringing children, technology and the natural environment together is a natural extension of the schools 'Learning Through Landscapes' initiative.

control. connect. communicate

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