

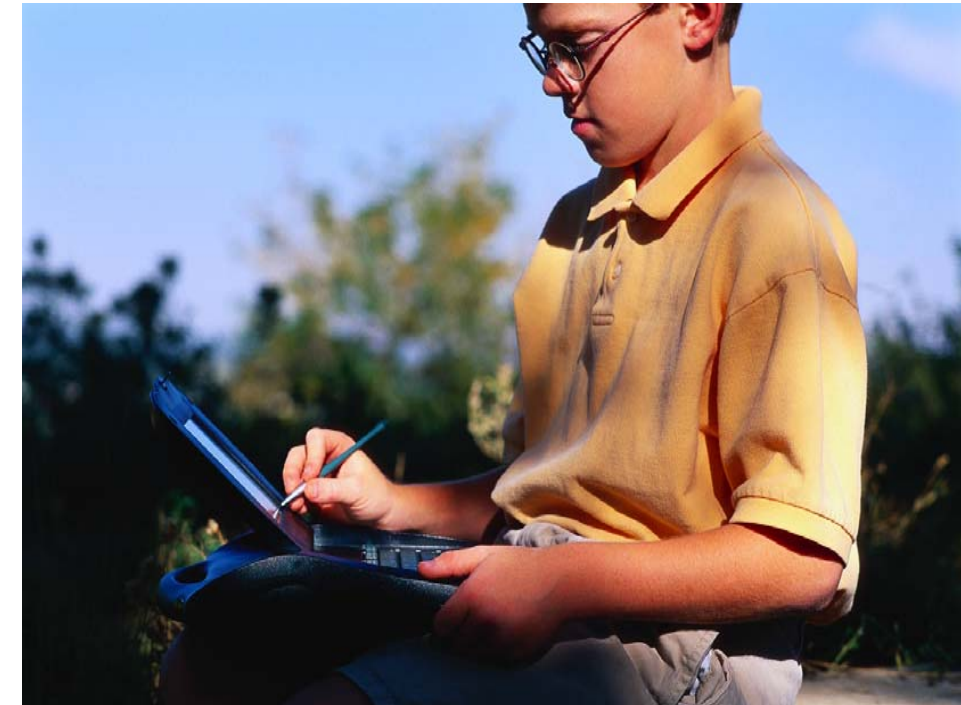


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## ICT Development Service Warwickshire Wireless Solution

*How it can benefit your school*



**Our wireless solution provides:**

**Most secure wireless connection available  
Anywhere roaming in a wireless environment  
Wireless performance, availability and coverage  
Prioritisation of services and users  
It's more than just a wireless connection.....**



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## Table of contents

	Page
<b>What is wireless?</b>	<b>3</b>
<b>Benefits of wireless in schools</b>	<b>3</b>
<b>Warwickshire's wireless solution</b>	<b>4</b>
<b>The benefits</b>	<b>4</b>
<b>Health and safety</b>	<b>5</b>
<b>Frequently asked questions</b>	<b>6</b>
<b>How much does it cost?</b>	<b>7</b>
<b>Next steps</b>	<b>7</b>



## How much does it cost?

The cost of the solution depends upon the size of your school environment and the number of devices that require wireless access. ICTDS can give an approximate cost but a full site survey at a cost of £150 can be undertaken that will give an accurate cost. The cost of the survey is refunded if wireless is ordered.

## Next steps

If you would like further advice or like to organise a survey then please ring ICT Development Service on 019026 414100 or email [ictdsservicedesk@warwickshire.gov.uk](mailto:ictdsservicedesk@warwickshire.gov.uk)



## Frequently asked questions

### Q – IS WIRELESS SAFE?

A - Extensive research on the safety of exposure to radio frequency electromagnetic energy has been carried out for more than four decades. This research is continually reviewed and interpreted by committees of scientists who develop safe limits for exposure. Manufacturers of wireless networks (WLAN's) monitor this research and participate in the consensus standards processes and ensure that their wireless products operate within the guidelines of these standards. Consequently, manufacturers of wireless products believe their products are safe and have deployed them into a multiple environments.

### Q – HAVING PREVIOUSLY TRIED WIRELESS IN A SCHOOL ENVIRONMENT, IT WAS SLOW AND UNRELIABLE. HOW WILL THIS BE ANY BETTER?

A – The proposed wireless technology ensures wireless coverage, availability, security and performance. With standard wireless access points supporting up to 300Mb and options for 1Gb wireless access points, they can prove faster than many wired network connections. In addition, the wireless system is clever enough to “load-balance” devices across nearby access points to ensure a consistent and high performance experience to the end-user. As part of the selection process for the appropriate wireless solution, the ICT Development Service team held strict performance tests with three wireless manufacturers at three primary school environments before selecting the proposed wireless solution from Khipu Networks.

### Q – IS WIRELESS REALLY SECURE?

A – Wireless can be very secure and can also be insecure (i.e. average “hotel and coffee shop Wi-Fi hotspots” are not secure); the security can only be guaranteed by ensuring the right choice of technology and its configuration and management. The ICT Development Service team have selected the most secure wireless solution available today, the only technology which is “Manual Y” Compliant for UK Government restricted networks. The technology and the configuration deployed, ensures that your connection and data/applications being accessed are secure from eavesdropping, hijacking and any other malicious attempts to disrupt your wireless service. All threats are identified, logged and alerted to the system administrator.



## What is wireless?

Wireless commonly termed WI-FI is simply a local area network (LAN) using radio waves rather than wires. This means that instead of having to connect your computer physically via a lead to a network, wireless allows you to use a wireless capable device (i.e. laptop) to roam around a classroom, between classrooms and anywhere that has “wireless coverage”.

Wireless networks can be used by teaching staff as well as authorised student devices and it can support a wide range of applications such as voice and video content (multimedia traffic) as required.

The technology selected by the ICT Development Service is considerably more advanced and secure than wireless services and technology that you may experience at home with your broadband provider or within an internet cafe hotspot.

The wireless technology being installed in to the schools within Warwickshire consists of a number of “Wireless Access Points” which are connected to the School Network. These Access Points effectively create a large wireless cloud which delivers services via wireless over a known and managed area. The access points are all managed which ensures the security and integrity of the wireless network.



*Examples of Access Points, they can be fitted to the ceiling or wall.*

The wireless network is aware of every access point within the school and also the surrounding area (i.e. neighbouring wireless networks such as home networks, which are unrelated to the school) and constantly scans all of the radio frequencies to guard against interference, which may be caused by neighbouring wireless networks or rogue activity (i.e. hackers and Cyber threats) to ensure the school wireless network remains secure and available to all users.

The Wireless network relies on radio waves which dissipate over distance; the school wireless network will be designed to ensure coverage and performance in specified areas which can support a large number of concurrent users (e.g. 30 students within a classroom or 200 users in an assembly hall).

## Benefits of wireless in schools

There are now over 45 schools in Warwickshire that have or are in the process of purchasing a whole schools wireless solution through Warwickshire's ICT Development Service. Many are reporting it to be a great aid to teaching and learning. Some of the improvements recorded are:

- The flexibility of wireless networks means that ICT can enhance learning in classrooms, shared areas, outside spaces, in fact any area covered by the wireless solution
- An increase in the innovative use of ICT by both pupils and teachers
- Greater accessibility has brought an increase in motivation for many pupils

Trolleys equipped with laptops or netbooks and wireless networking can be a mobile, shared resource that gives access to a school network and the internet. As a flexible resource they might better suite an individual school needs or compliment an existing wired network using desktop PC's.



## Warwickshire's wireless solution

Some school had explored the use of a mobile wireless solution designed for home use. They found this to be at times unreliable in the school environment. In 2009, in response from a growing demand for a high quality wireless solution, Warwickshire's ICT Development Service reviewed a number of the leading wireless vendors and short-listed three of the market leaders. A very strict criteria was produced, these included testing of devices in the school environment, security against potential threats and the ability to cope with interference. Aruba Networks through their expert wireless partner Khipu Networks were awarded preferred status as they were able to demonstrate that their wireless technology was the best in terms of performance, security, ease of installation, management and support.

In a separate and independent evaluation Warwickshire County Council also awarded their tender to Khipu Networks.

The alcatel solution through Khipu networks was not the cheapest solution but the testing did reveal that it provided the functionality that the schools required combined with the security and support.

## The benefits

There are a number of benefits of using the Warwickshire County Council Wireless solution, these include:

- Any authorised wireless device will be able to use the wireless network at any subscribing school to gain internet access
- The selected technology is the most secure wireless solution available, ensuring data privacy from unauthorised or authorised users. The wireless technology is approved for connection to Government restricted networks
- If individual access points become faulty then neighbouring access points "take over" and share the load so that users do not lose connection
- The ability to be always 'on-line' and to roam throughout the environment without losing a connection or having to re-attach to wireless
- Constant scanning to guard against interference, which may be caused by neighbouring wireless networks or rogue activity (i.e. hackers and Cyber threats)

The wireless network can automatically ensure that specific applications (i.e. teaching applications) receive priority over others and it also supports fair usage for student access to the network, ensuring that all users receive the best performance and experience irrespective of the device they use to access the network and experience irrespective of the device they use to access the network

- The wireless installed through ICT Development service uses the latest standard, 802.11n. This will help future proof the investment and will help to support your future requirements for student and staff access
- The solution has been tested and proved to work with all wireless devices purchased through ICTDS



## Health and safety

As wireless has become more prevalent, there have rightfully been questions regarding its safety and especially around children. Interest in the health and safety of wireless increased following the BBC Panorama Investigation "Wireless Special" in 2007, this in turn led to certain Warwickshire County Council staff questioning the safety of the wireless network being deployed into the council offices. Consequently the council commissioned an independent review of the wireless equipment being deployed. A report was produced and concluded that the wireless technology was working within Government guidelines and therefore should provide no health risk.

In addition, a statement was received from the Government Health Protection Agency:

"There is no scientific evidence to date that Wi-Fi and WLANs adversely affect the health of the general population," said Professor Pat Troop, chief executive of the government-established Health Protection Agency (HPA), "The signals are very low power, typically 0.1 watt in both the computer and the router, and the results so far show exposures are well within [International Commission on Non-Ionizing Radiation] guidelines. Given this, there is no particular reason why schools and others should not continue to use Wi-Fi or other wireless networks."

However it should also be noted that the HPA continue to monitor wireless technologies/health risks and will update their position if and when evidence appears to the contrary.