

Bluetooth



What it is and what it does

Bluetooth¹ is basically a way of connecting computing and communications equipment together without using cables. It uses low power radio signals at 2.45GHz to replace the cables. The transmission rate is 1Mbit/s (about the same as a USB connection) and the range is a few tens of metres. It can be used to link any group of devices that would normally be connected by cables. To give an example, it could connect your computer to a mouse, keyboard and printer, and link it up to your Personal Digital Assistant (PDA).

However, Bluetooth is more than a simple radio link. It is a sophisticated communications protocol that, as well as establishing a connection to any other Bluetooth equipped device, negotiates with that device on your behalf. It will determine, say, whether the owner of another computer wants to exchange files with you or whether the owner of a printer is prepared to let you use it. It will also make sure that the other device is capable of understanding the information you send to it (and vice-versa).

This means that, without having to think about it, you can instantly establish an ad-hoc network involving any Bluetooth equipped devices within range. Nomadic workers who spend a lot of their time away from the office could find this particularly useful. For example, if you are giving a presentation to a customer or client, Bluetooth will automatically connect your laptop computer to the projector in the meeting room and to a printer in the adjacent office so that you can give your slideshow and print off a set of handouts without having to fiddle around with cables. It can also link your computer or PDA to your mobile phone so that you don't need to carry a cable around with you if you want to access the Internet when away from the office.

Bluetooth uses the same range of frequencies as Wi-Fi Local Area Networks but interference is not likely to be a problem because Bluetooth transmitters hunt for an unused frequency before setting up a connection.

It is very difficult for eavesdroppers to intercept Bluetooth signals. This is partly because of the short range but also because the transmitter hops around between 79 possible frequencies every second or so. This gives even the most determined eavesdropper little chance of intercepting a complete message, let alone decrypting it.

The idea for Bluetooth originally came from Ericsson but has been taken up by many other companies who are working together in the [Bluetooth Special Interest Group](#) to develop detailed specifications for Bluetooth devices. Version 1.1 of this specification is now stable and there are over 800 commercial products listed on the [Bluetooth website](#). It costs a manufacturer about €5 to build Bluetooth capability into a computer, mobile phone, printer or whatever. However it is considerably more expensive to add Bluetooth capability to an existing computer. A limited range of plug-in cards is available but they cost upwards of €100 each.

Advantages and Disadvantages

The obvious advantage of Bluetooth enabled computers, mobile phones etc is that you don't have to carry a bag of cables around with you when working away from the office. A further benefit is the ability to set up ad-hoc networks with other Bluetooth enabled devices wherever you happen to be.

Key messages for SMEs

- Bluetooth is a way of using radio to replace the cables used to connect computing and communications equipment together.
- Current equipment does not deliver the Bluetooth vision of seamless connectivity between any set of Bluetooth enabled devices.
- At present Bluetooth is only useful for simple one-to-one cable replacement tasks.

¹ Bluetooth is named after a 10th century Viking King, Harald Blåtand (Bluetooth in English), who united Denmark and Norway - hence the inspiration for the idea of 'uniting devices with Bluetooth'.

Unfortunately the current generation of Bluetooth products do not deliver this vision of seamless connectivity. Tests by PC magazines suggest that getting today's Bluetooth products to work together takes time and requires a fair amount of technical expertise.

Manufacturers are aware of these problems and say that they hope to resolve them within the next year. However, until Bluetooth enabled equipment genuinely offers a 'plug and play' experience, it is not really suitable for small business users with limited technical knowledge. Even if you could connect to them easily, there are at present too few Bluetooth enabled pieces of equipment in real working environments for the technology to be of much use to the average small business.

What to buy

Although there is a fairly wide range of Bluetooth equipped devices on the market, they cannot yet deliver the vision of seamless interconnection with any other Bluetooth device but they can replace cables for one-to-one applications, such as connecting a PDA to a PC.

In general it is not worth adding Bluetooth capability to your existing equipment and, given the current state of the technology, it is only worth paying extra for Bluetooth in a new piece of equipment if you have a specific task in mind and your supplier can set it up for you.

Most high-specification mobile phones now incorporate Bluetooth capability. A Bluetooth headset could be a useful accessory. Not only does it offer hands free operation but it also emits far less radiation than the phone itself. Bluetooth could also be a convenient way of connecting your mobile phone to your laptop or PDA in order to access the Internet.

Questions to ask suppliers

Given that the publicity for Bluetooth claims rather more than it can currently deliver, there is one major question to ask.

- I want to connect these devices together using Bluetooth. Can you show me it working?