

VoIP & BT's 21st Century Network

Back to basics, what you need to know:-

PSTN – For more than a century, the public switched telephone network (PSTN) has used circuit switching whereby, for each telephone call made, circuits are switched in the intervening telephone exchanges to create a physical connection between the caller and the person being called for the duration of the call. The great advantage of this type of switching is that call quality is extremely high because a dedicated line is being devoted to the call. The major disadvantage is that this type of switching is expensive because it requires considerable capacity in the network as most of the time most of the capacity is not being used

Packet Switching- The alternative to circuit switching is called packet switching and traditionally this has been used for data networks connecting computers, it uses a method called Transmission Control Protocol/Internet Protocol or TCP/IP or IP for short.

In such a network, data is divided up into small packets which are given identifying information (Packet Headers) this is then sent over the network by a variety of different routes, before being reassembled at the end by the use of the packet headers. Packet-switched networks do not use an elaborate system of switches or exchanges but a much simpler system of routers.

The great advantage of this type of switching is that it is very cost-effective, making much more intense use of the network, by routing packages along the least busy lines. In the past, packet switching was not used for voice because the breaking up and reassembly of the packets would cause an unacceptable deterioration in quality, because of the delay in the packets arriving from different routes. However, technology has now advanced to the point where it is possible for a network to distinguish between packets that are voice and packets that are data and give priority to the former. The issue of the delay in the packets has been eradicated overnight. It is now possible to send not only voice but video using this method. The transmission of voice over IP technology has become known as “VoIP”.

VoIP In Britain the move to VoIP has to be seen in the context of BT's moves to what it calls "the 21st century network" (21CN) and what is more generically known throughout other telecoms as "next generation networks" (NGN). There is no agreed definition of Next Generation Networks but, at the heart of the concept is the integration of existing separate voice and data networks into a much simpler and more flexible network using packet switching and IP protocols. This will enable voice, text and video messages to be carried on the same integrated network.

21CN For once BT has been thinking ahead and is now implementing the biggest and most expensive upgrade of the whole BT telephone network in the UK. To put it bluntly BT are ripping out all the old PSTN equipment from their exchanges and replacing it by new Packet Switching, IP based equipment.

Now as you can imagine to ensure that no current services are affected the work has to be completed in phases and most of the work is to be done overnight. The switching over itself for each line will only take a matter of minutes and in most cases you won't notice. Roll out of this new equipment has already started and is planned to be complete by 2011, most major cities and towns will using this equipment by the start of 2009.

Now just before you panic about needing to change all your office phone systems read on.....

BT has had to take in to consideration all the equipment that exists in homes and office in the country, and unlike Digital TV, BT has had to promise the government that all existing equipment will work on the new 21CN system.

If you are told otherwise by unscrupulous telephone sales people then show them the door. BT has tested every telephone and business PBX (Private Business Exchange) to ensure that they will work, and it would appear that 99.9 % will. Unless your system goes back to the 70's then you will not have a problem!

Why will existing equipment still work?

Well the so called "last Mile" from the exchange to your premises will still be using the existing copper wires; there will be no new cabling, no visits to your premises, no need to dig up roads. The new IP technology will imitate the old PSTN technology to your premises, so you existing phone system will not know the difference.

The Benefits The advantages of having this new technology are going to be enormous, firstly there are going to be massive changes to the way we can send and receive data.

BT will be able to guarantee a broadband service, with what they call a SLA (Service level agreement). This means that if a fault occurs on your broadband it will get fixed in a fixed time scale, just like a normal phone line would. Believe it or not this isn't available at present. This will ensure that if you chose to use VoIP for you phone calls, should a fault occur, it will get fixed fast.

There will be scope for broadband speeds to increase. Theoretical download speeds of 24Mb's will be possible and most importantly upload speeds will rise to 2MB and beyond. Again giving loads of bandwidth for vital VoIP traffic.

It will be possible to guarantee bandwidth for VoIP traffic. This is called Quality of Service (QoS), enabling phone calls to be transported without packet delay, and hence perfect call quality.

You will be able to change your office telephone system (PBX) to one which will support VoIP (using an IP-PBX) and take advantages of free internet phone calls and low cost call routing. (For more information on the benefits of IP based PBX systems see our guide on the front page of our website)

Home users will also benefit from this new technology with the enhanced broadband speed and new IP phones. Video messaging on phones will come of age at last.

I hope you have enjoyed reading our short guide and its worth remembering that the sales potential in all this new equipment is enormous. There are already lots of unscrupulous companies playing on the back of these changes. Remember our advice is always **free**. If you have any issues or thoughts about changing your existing phone equipment / services or broadband then please give us a call first on **08000 669900**.

This simple guide is meant to cover just the main fundamentals and highlight the benefits of 21CN & VoIP technology. This guide is in not a technical offering; all the technical stuff is available on line if required at

<http://www.btplc.com/21CN> (BT's site)

<http://www.switchedonuk.org> (Government Site)

<http://en.wikipedia.org/wiki/VoIP> (Wikipedia's description of VoIP)

<http://www.samknows.com/broadband> (Very Good Broadband Info Site)