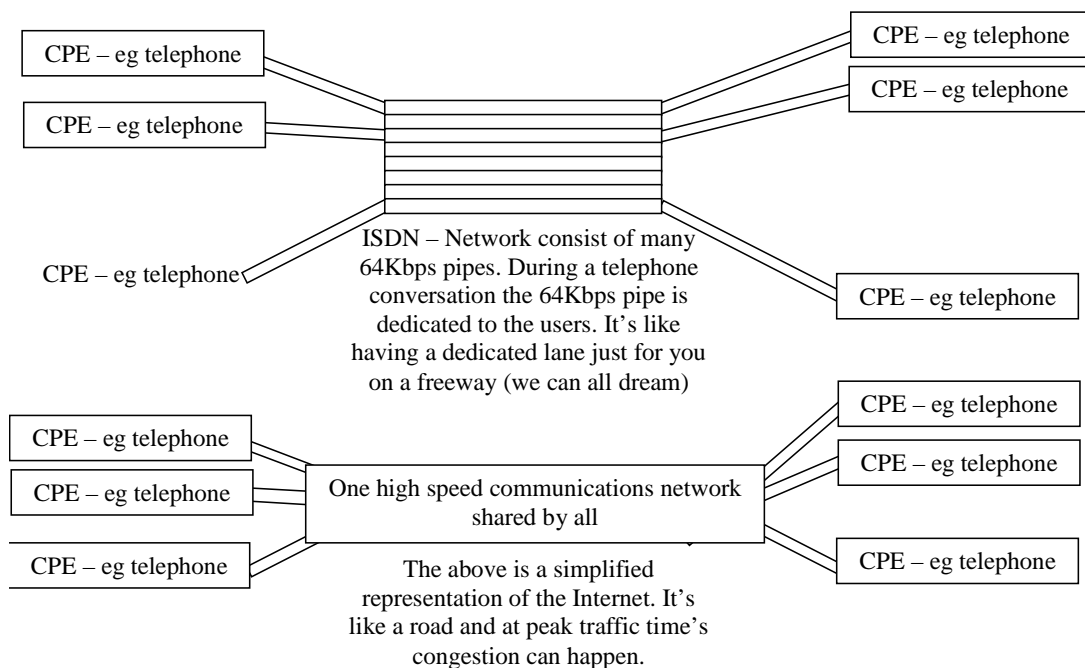


## WHAT IS VOICE OVER IP (VOIP) – PART 2

### Compression/translation of the signal into Internet protocol (IP) packets

Earlier on we established that in the process of converting the analogue signal to a digital signal we generate a digital bit stream of 64Kbps bits per second. With reference to section titled “**Error! Reference source not found.**” you will see that the B channel is designed to work at 64Kbits which happens to be the output of the Analogue to Digital conversion, this is not a coincidence. ISDN was designed from the ground up to provide an end to end channel (line) that will support the 64Kbits per second bit rate from the A to D conversion.

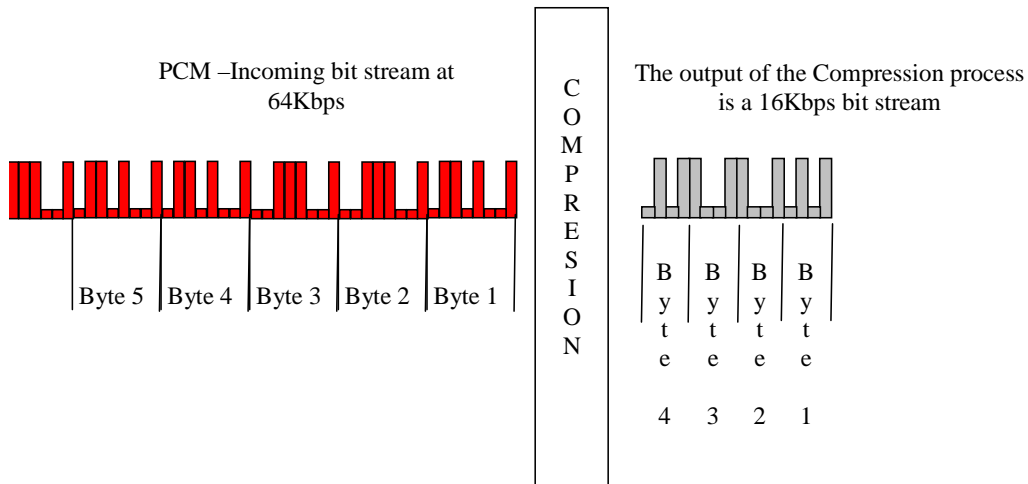
In the case of the internet instead of providing a 64Kbps pipe like ISDN it provides a shared road and therefore it is necessary to reduce the bit rate and this is achieved by compression.



**Figure 1 comparison between ISDN and Internet**

With reference to Figure 2 compression is achieved by combining a number of incoming bits into a smaller number of bits based on a mathematical formula. There are a number of different compression techniques that can be applied.

For example if the incoming bit stream was a continuous stream of “1” then every time you have 8 “1” in a row you could convert to a four digit code “1010” and if a you 8 “0” in a row you could convert them to a four digit code “0101”.



**Figure 2 Compression of data**

So the outcome of the compression process is too effectively to reduce the number of bits that need to be transmitted.

Compression rates vary depending of the compression techniques used and they range from 32Kbps down to 9.6Kbps. It should be noted that as you increase the level of compression on a voice services you are increasing the level of background noise when you decode the signal, as long as the difference between the wanted signal the speech and the background noise is sufficiently large so that persons communicating are able to understand then the system can be considered acceptable.