Circuit switching

How does VoIP work?To answer this question we first need to explain how a traditional telephone network works.Circuit switchingExisting telephone systems use a reliable but inefficient way to link two phones to each other: circuit switching.Circuit switching has been used for about 100 years to set up telephone conversations. If you make a phone call the connection will be kept open for the duration of the conversation and in both directions. This is the principle of the Public Switched Telephone Network (PSTN).

In the early days of telephony large switch-panels were used, which were manually linked up by an operator. A telephone line which literally ran from telephone to telephone was freed for you. In other words: there was a line from your telephone in one town that ran to the other telephone in another part of the country. You can imagine that making phone calls in that way was very expensive!TransportToday, telephone calls are set up more efficiently. Your voice is digitized with thousands of other conversations and is transported over the same telephone line to a certain destination. In this way only the first and last parts of the line are dedicated. The digitized voice packet is compressed to keep it as small as possible. This way, the transport is very efficient. This compression will affect the sound quality. You can compare it with an MP-3 file that you ‘rip’ from a CD and convert at a lower bit-rate, to keep the file small. The conversation packages are sent with a constant bit-rate of 64 Kilobits per second (Kbps) in both directions. That is a total of 128 Kbps. So, at any time, half of the total connection is used.
This is, in short, the principle of a packet-switched telephone network.