WHAT IS VOIP?

Internet telephony is quickly becoming the ideal option for most firms, owing to its increased reliability and accessibility. Two application layer protocols form the backbone for IP telephony, SIP and RTP. The Session Initiation Protocol (SIP) exists within the Network Layer, Internet Protocol, and is responsible for the signaling in the call. Within the SIP (over UDP or TCP) the Session Description Protocol (SDP) is established, allowing for the RTP (Real Time Protocol) to be set up and maintain a connection for real time content, such as voice or video. SDP is negotiated between the originating UA and the termination device (often times a proxy or SBC between the actual endpoint). A session, in this case, refers to an exchange of data between two endpoints.

VoIP, an acronym for Voice over Internet Protocol, is fast transforming the telecommunications industry. It refers to standards that enable voice-based calls over the internet, as opposed to using traditional circuit transmissions. In the past, the internet was used for the transfer of messages only, but with further advancements in technology and increased service quality, it is now possible to convey voice communications over the internet.

Also referred to as IP telephony, voice over broadband, internet telephony, broadband telephony, and so on, VoIP technology converts voice into digital signals, compresses them, and then breaks them up into packets, which are sent directly over an IP network.

What are the differences from traditional systems?

Quite a few characteristics distinguish VoIP technology from traditional PTSN communication systems. First, while PTSN uses circuit switching, VoIP uses packet switching instead. Second, with PTSN, there is usually a dedicated path between the caller and the callee, and bandwidth that is reserved in advance. Which consequently affects the cost for PTSN, which is based on distance and time. Contrary to PTSN, with VoIP there is no dedicated path between the caller and the callee, and nor is there reserved bandwidth. Bandwidth for VoIP is acquired on-demand; which means distance and time do not impact the costs in any way.

How VoIP Works

In terms of its cross-tech functionality, there is a process for analog voice calls to connect to VoIP calls. Analog calls have to be converted into digital packets of data. Encoding of an analog signal into digital data is accomplished using codecs, short for encoder-decoder. Since voice signals contain a lot of data, compression is critical. Codecs ensure that data is compressed for faster transmission, while also ensuring that the reliability and quality of the voice signals are not compromised. When the encoded digital data reaches the destination, it is decoded back into its original analog form, to enable the callee to hear and understand it.

There are two main paths that a VoIP call follows. If both the caller and the callee are using VoIP, then the entire communication will take place over the internet. However, if the callee is using the traditional network, the call will travel as far as it can using VoIP, and then switches to the PTSN to reach its destination. A similar process applies when a traditional phone is used to contact a callee using a VoIP service.

How to Use VoIP

There are several ways to use VoIP service. To begin with, VoIP can be used with a VoIP phone. Or if you have an analog phone, you can use an Analogue Telephone Device (ATA), which is an adapter that makes it possible for an analog phone to access VoIP service. VoIP service can also be used via a softphone. Softphones are programs that load VoIP service onto another device, such as a computer or tablet. Although it is possible to access a softphone through your mobile device, service providers often have an app available to handle the VoIP functions.

There are many reasons why VoIP calls are quickly surpassing traditional phone systems as the preferred means of communication. First, VoIP is more cost effective, in the sense of the installation and the calling costs. VoIP reduces the amount of infrastructure required and the call rates are cheaper. Second, VoIP is easier to integrate voice, data, video, as well as fax, which is not usually the case with PTSN services. Lastly, VoIP is preferred for its flexibility and scalability, you can easily relocate and scale up (or down) as needed.