

ANALYSIS OF THE RATE OF ABSORPTION OF VOIP AS A TOOL TO REINFORCE THE NEED TO DEVELOP QUALITY EVALUATION SYSTEMS

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Abstract

As the use of VoIP continues to grow, there have been a lot of improvements and innovations to offer better services. However, there is still a lot to be done to improve and restore confidence in consumers who use or would like to use VoIP. Many people doubt the security level of VoIP compared to normal phones. The internet is prone to attacks and this compromises the use of VoIP. There is a need to put in place quality evaluation systems that will ensure that consumers are protected from possible interference. The quality of VoIP services being offered should be credible. This paper will discuss the need to have quality evaluation systems based on the absorption and increase in the use of VoIP. The paper will look at how VoIP use has grown in and discuss why it is necessary to have quality evaluation systems in place.

1.0 Introduction

Voice over Internet Protocol is a phone service delivered over the internet. The use of VoIP could be the next revolutionary thing in the IT field. Many companies have embraced the use of VoIP phones. They are cheap and efficient due to the internet efficiency. The most commonly used way of VoIP is through the use of an Analog Telephone Adaptor. This device turns the analog signal that the normal phone uses to digital signals. These signals can be sent through the internet. It is a simple device that is easy to use. One can also use IP phones. These phones look like normal phones, with the only difference being that instead of being plugged into the wall jack, they are plugged directly to a router. These phones use the internet to communicate with a VoIP server. These two are the most commonly used.

The rate at which VoIP is being embraced is very promising. The trend for lowering operation costs for companies is a major reason why VoIP is becoming an attractive communications option for consumers. Many companies have started using this service. There has also been an increase in the number of companies offering VoIP services. In 2000, there were more than 3 business entities for VoIP-based services. Learning institutions have also embraced the use of VoIP to connect with their students (Goncalves, 2010). E-learning is a good example of the use of VoIP by learning institutions. It is friendly, and allows for fast and efficient communication between tutors and their students. Its importance cannot be overstated in education.

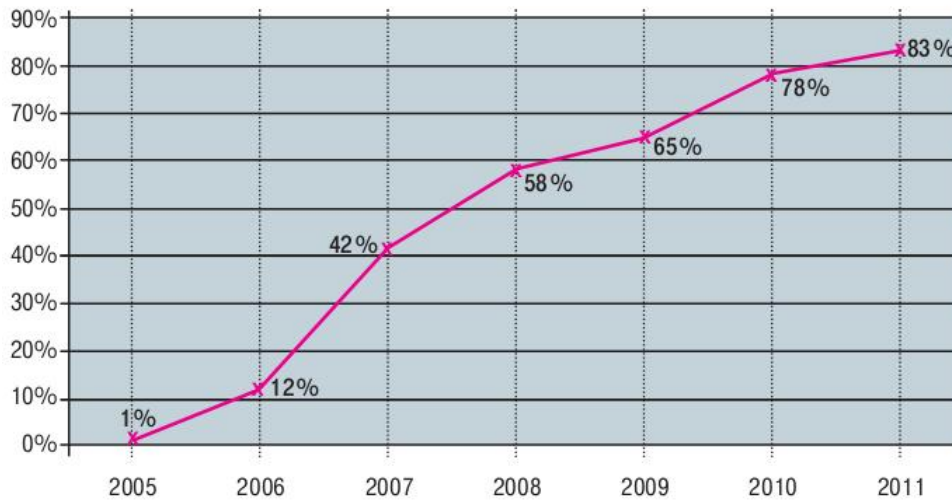
2.0 Materials and methodology

The main materials used in this paper are second-hand data. This data is from credible research papers and websites that discuss VoIP in a deep and detailed manner. For objectivity purposes, only data that discusses the problems that affect the quality of VoIP and their possible solutions will be used.

3.0 Results and discussion

It is evident that many companies have changed their communication systems from ordinary analog telephones to VoIP. Many, if not all European countries use VoIP to make calls, especially among employees. VoIP has steadily grown and is now a competitor to other phone service providers. It is interactive since participants are both speakers and listeners at the same time.

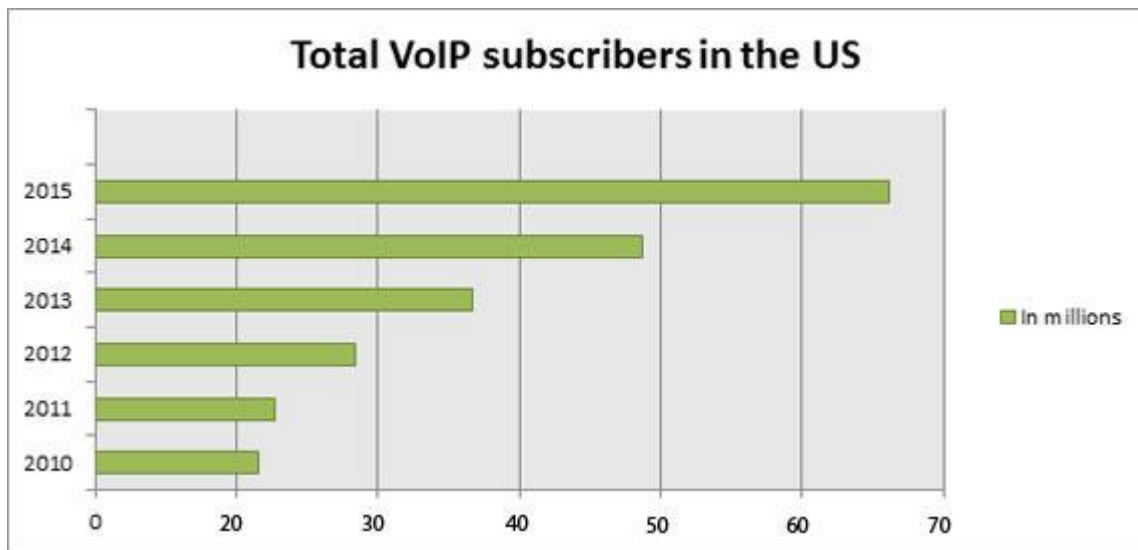
Percentage of completely migrated companies



Source United States 2012

Figure 1: Data showing how European Companies have migrated to VoIP

Technology has also helped in the evolution of VoIP. Smartphones have come and eased the burden of making VoIP calls. Initially, these calls could only be made through a desk phone that is connected to the internet or through a computer. Smartphones now have upgraded and support VoIP calls. For example, the Samsung Galaxy S4 can make a video call to a person in any part of the world. This is advancement in VoIP use. With time, almost everyone will have a smartphone with access to VoIP calls. This trend will make VoIP very common and many people will be using it to make calls. It is estimated that the number of people using VoIP in the United States will be more than 65 million by 2015.



Source Gonclaves 2010

Figure 2: Estimated no. of VoIP users in the US

The current trend about VoIP is such that many have started using and are continuing to use it. For this reason, there is a great need to ensure there are means by which the quality of calls can be measured. This will ensure that consumers are satisfied and are getting quality services. As it is now, there are few means by which the quality of VoIP calls is monitored.

Evaluation of VoIP entails evaluation of data. This is so since data affects the quality of VoIP calls. Packet loss, jitter, delay and bandwidth all have a big effect on the quality of calls made. VoIP calls require low packet loss rates, low delay, low jitter and sufficient bandwidth (). VoIP calls are based on IP network, which cannot guarantee delay, packet loss and jitter. This makes the voice quality vary in different environments.

Improving VoIP Quality

Currently, VoIP systems use the best effort delivery service to transfer data (Dodd, 2012). They do not use packet retransmission protocols because the lost packets, even after they are recovered, delay and do not reach the receiver in time. There are more reliable protocols such as Transmission Control Protocol (TCP), but they temporarily block when there are timeouts and retransmission failures. From the research, these came out as some of the most common problems that compromise on the quality of VoIP calls.

A good quality evaluation system should be able to identify and solve these problems at ease within the shortest time possible. It should have a troubleshooting mechanism that rapidly determines, and gives accurate information about the problem together with what caused it (Salah, 2009). The system should also have the ability to collect data about a problem and understand it. This will ensure that these problems are prioritized according to hardness.

A major problem that came out with VoIP calls is lack of a system in place that evaluates and determines if a certain network is capable of handling VoIP. This leaves the consumer at the fate of the network. If the network is not reliable, the consumer will have quality problems with the use of VoIP. A good quality evaluation system should be able to collect and analyze data about a network and determine, with high accuracy, if the network is capable of providing quality VoIP calls. It should also be able to simulate the effect of traffic on the quality of VoIP calls (Salah, 2009).

Network bandwidth is the main determinant of VoIP quality. VoIP requires a large bandwidth to function well. This comes as a major problem especially in this era where technology has brought a lot of disadvantages. Since VoIP calls are made through the internet, they are prone to the same attacks that attack computers. It is possible to hack the network and listen in on your conversation. Worse still, your phone can be hacked into and be used without your knowledge for criminal activities. This jeopardizes the security of the user. A good quality evaluation system should be secure from these hacks. The best way to counter this is the use of a dynamic system that is not easy to hack into, and keeps on changing to ensure that there is no possibility of anyone mastering the system.

4.0 Conclusion

As the world embraces VoIP technology, it is crucial that research is done to ensure that VoIP calls are of good quality. This has already started and companies such as CISCO researching and trying to improve on VoIP calls. However, they mainly target large companies. This has left out single customers who would like to enjoy the service. There should a system that ensures there are standards for quality VoIP calls.

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