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The Application of VoIP Technology on Ship's Interior Communication System

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Abstract:

Ship's interior communication system is important to the operation of the ship. Improper communication among the different parts of the ship can cause the failure of a mission. Although, traditional ship's internal communications provide reliable message delivery, there are some limitations of these methods. However, since the evolution of data communication has continuously developed, it is feasible to apply proper technology to improve the way the crew communicates to one another on board for enhancing the ability of communication system. This paper aims to provide an overview of Voice Over Internet Protocol technology focusing on Elastix, including related softwares. This paper also aims to suggest the direction of how to apply the low-cost but effective technology to existing devices such as mobile phones and notebooks for communication alternatives.

Keywords: Ship's Interior Communication System, VoIP, Elastix, Asterisk, SIP

1. Introduction

Voice over Internet Protocol (VoIP) is one of the greatest technologies that have various benefits to many organizations and communication areas. It has been around for both the commercial use about the last decade. VoIP is not dealing with only telephone but it is also dealing with data devices that transmit in real-time audio communication. In other words, Voice over Internet Protocol (VoIP) is defined as a technology that transmits voice signal in real time using the Internet Protocol (IP) over a public Internet or private data network [i]. First, the analogue signal is converted to the digital signal. Then compressing and encoding processes are made. The transmission of IP packets is carried out over the IP network to the receiver. At the receiver end, the received IP packets reassembles in order before decompressing and processing through the use of a Digital to Analogue Converter (DAC) to generate the initial signal transmitted [ii]. Since VoIP is based on two existing technologies, the telephone and the Internet, It allows for inexpensive voice and data communication. All these factors converge to the innovation of modern communication system.

2. Elastix

Elastix is an open source software that provides not only telephony, but also combines other modern communication methods to make an organization more productive and efficient. This software includes the common media such as Voice Over Internet Protocol, Fax Server, Instant Messaging, Mail Sever and Video Conference. Elastix is capable to establish an efficient environment on the organization with lots of communication features. The prominent features include PBX Interconnection, Web Interface Configuration, and Virtual Conference.

Elastix Components

Elastix comprises the components that the organization can benefit to. Major components are Asterisk, Free PBX, Flash Operator Panel, OpenFire, and HylaFax. We will brief the functions of each feature in order to understand the abilities of Elastix.