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Implementing Advanced Security Measures in Asterisk-Driven VoIP Networks.

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Abstract : Voice over Internet Protocol (VoIP) is a rapidly advancing technology that facilitates the transmission of voice and audio signals over the Internet or an IP-based network in real time. This technology has seen a significant rise in demand due to its advantages over traditional circuit-switched telephony, including lower call rates, reduced operational costs, easier management, and enhanced call features. However, the growth in VoIP usage has also increased the potential for various security threats and attacks, jeopardizing the privacy, confidentiality, and integrity of transmitted data. This paper presents the design of an Asterisk-based VoIP system and the implementation of a comprehensive security solution across the VoIP network. The study involves an in-depth analysis of VoIP technology, identifying its vulnerabilities and addressing potential threats. A security framework is proposed and implemented to safeguard the VoIP network. The designed system and security solutions are rigorously tested and evaluated to ensure robustness and effectiveness. The findings highlight critical security measures necessary for protecting VoIP infrastructures and provide a framework for future research and development in securing VoIP networks.

Keywords : asterisk, codec, cybersecurity, IPsec, malware, network security, phishing, telecoms, threats, telephony, VoIP
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