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An Email Classification Framework for Phishing Detection in Virtualized Network Environments

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Phishing attacks pose a significant threat to network security, and effective detection and mitigation techniques are crucial to safeguarding sensitive information. This paper presents a novel email classification framework for phishing detection in virtualized network environments with a specific emphasis on distributed firewall architectures. The framework leverages the power of the Naive Bayes classifier to analyze the preprocessed text of emails and accurately classify them as either phishing or legitimate. By integrating the framework into a distributed firewall setup, the email traffic can be dynamically controlled and filtered at multiple network points, enhancing the overall security posture. The script accompanying this paper demonstrates the practical implementation of the framework and provides an example of its usage in a distributed firewall setup. Experimental results showcase the framework's effectiveness in accurately classifying emails, thereby enabling the deployment of appropriate firewall rules to block phishing emails from reaching their intended recipients. The framework's modular design allows for easy integration into existing virtualized network architectures, providing an additional layer of security against email-based threats. Overall, this research contributes to the advancement of distributed firewall technologies and strengthens the email security infrastructure in virtualized network environments.

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