Proceedings of the 16th International Conference on Quality and Dependability
Sinaia, Romania, September 26th-28th, 2018
ISSN 1842-3566
Pages 243-246

Network Security Monitoring with Embedded Platforms

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Abstract
Wireless networks are used worldwide as the means of connecting computers and mobile devices to the internet with ease and without any wires. Over the years technology advancements made wireless routers accessible for consumer use in public places as well as in households. From a security perspective, wireless networks pose an increased risk, not only for unauthorized access to the network, but more important for manipulating the information flow of other users on the network. Man-in-the-middle attacks enable attackers to impersonate legitimate services and intercept communications from the users in an attempt to steal sensitive information. This paper aims to propose a solution based on embedded devices to detect attackers that manipulate the network with the scope of stealing sensitive information. The proposed solution is based on low cost and energy efficient computers that can be connected to regular network equipment to detect and alert on malicious activity.

Keywords: Security, Embedded devices, ARP Spoofing, Man-in-the-middle, Packet Analysis, Intrusion Detection

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