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DEVELOPMENT AND ANALYSIS OF A LOGICAL ATTACK GRAPH: CASE STUDY OF FEDERAL UNIVERSITY OF TECHNOLOGY AKURE (FUTA) NETWORK

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ABSTRACT
A practical approach to modeling vulnerabilities and assessing security risk level of a computer network was proposed in this paper. Attack graph has been proposed by many researchers as a way to identify critical network weaknesses, construct adversary models, evaluate network security and suggest changes to improve security. In this work, we adopt an automatic approach in developing a logical attack graph on Federal University of Technology Akure (FUTA) network using Bruce Schneier's Attack Trees modeling technique. An algorithm for auto-generating attack graphs was developed and implemented with appropriate software technologies. The developed graph was analyzed to reveal the vulnerabilities and threats and also to show the level of risk of attacks in the network using Meier's techniques. Future work proposed include using reasoning engines in conjunction with the existing techniques for modelling attacks, thereby making the modelled graph more dynamic.
Keywords: Attack trees, attack graphs, network assets, vulnerability, security threats.