CYBER SECURITY: AN ATTACK GRAPHS PERSPECTIVE

Valentin PAU[1] Dorina-Luminița COPACI [2], Constantin Alin COPACI[3]

Rezumat. *Graficele de atac sunt folosite pentru a modela vulnerabilitățile sistemului și exploatările potențiale ale acestora. Măsurile de securitate servesc drept instrument puternic pentru organizații, pentru a înțelege eficacitatea protecției rețelelor de comunicații. Lucrarea de față prezintă o metodă de analiză și evaluare a securității cibernetice, bazată pe grafice de atac. Se utilizează o reprezentare a relațiilor dintre resursele vulnerabile și incidentele de securitate produse în rețele și se obține cuantificarea nivelului de securitate al acestora.*

Abstract. *Attack graphs are used to model system vulnerabilities and their potential exploits. Security metrics serve as a powerful tool for organizations to understand the effectiveness of protecting communications networks. The present paper presents a method for analyzing and assessing cyber security, based on attack graphs. It uses a representation of the relations between vulnerable resources and security incidents produced in networks and allows the quantification of their security level.*

Keywords: cyber security, attack graph, security metrics, vulnerability

1. Introduction

The complexity of the analysis and evaluation of current systems security is generated by the multitude of technologies, by the nature of the systems' resources, but also by the diversification of the threat types. [1] The current methods of network security analysis and evaluation are based on quantitative and qualitative approaches.

The attack graph method is a system security analysis and assessment method which uses symbolic representations of the relations between threats, system resources and the potential consequences of attacks. These symbolic representations are called attack graphs and also allow the quantification of the security level for a communication system. [2. 3]

With the expansion of network connectivity, there has been a rapid increase in the number of cyber attacks on corporations and government offices, damaging the reputation as well as the financial stability of these corporations.

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[1]Professor, PhD, full member of Academy of Romanian Scientists, str. Ilfov nr. 3, sector 5, Bucharest; (e-mail: valentin.pau@prof.utm.ro);
[2] PhD, Titu Maiorescu University, Bucharest;
[3] Engineer, ANCOM, Bucharest