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A Security Proposal Based on a Real Time Agent to Protect Web Services Against DoS Attack

Cristian Pinzón, Angélica González, Manuel Rubio, and Javier Bajo

Abstract. This paper describes a novel proposal based on a real time agent to detect and block denial of service attacks within web services environments. The real time agent incorporates a classification mechanism based on a Case-Base Reasoning (CBR) model, where the different CBR phases are time bounded. In addition, the reuse phase of the CBR cycle incorporates a mixture of experts to choose a specific technique of classification depending on the feature of the attack and the available time to solve the classification.

Keywords: Multi-agent System, CBR, Web Service, SOAP Message, DoS attacks.

1 Introduction

New security issues as well as new ways of exploiting inherited old security threats can become a serious problem to applications based on web services. One of the threats that is becoming more common within web services environments and jeopardizes the availability factor is denial of service attack (DoS) [6] [5]. Since web services are a combination of a variety of technologies such as SOAP, HTTP, and XML, they are vulnerable to different type of attacks. For example, an attacker sends a malicious request (XML message) to the web service and the XML message forces the XML parser into an infinite recursion exhausting all

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enabling its use in real time. Additionally, the adaptation phase in the CBR system that is integrated in the agent proposes a new analysis classification model that is carried out by a mixture of experts. This new model makes it possible to divide the complicated classification task into a series of simple subtasks, so that the fusion of the solutions given by the sub tasks generates the final solution.

Our proposal can be considered as a solid alternative to detect and block DoS attacks. We continue working to achieve a full prototype and then evaluate it within several real environments to probe its effectiveness.

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Approaching Real-
through MOVICAI

Martí Navarro, Álvaro Herrero, Em

Abstract. This paper presents an
gent Intrusion Detection System c
to enable real-time processing and
CAB-IDS combines artificial neur
multiagent system to perform Intru
The contribution of the *anytime* alg
tificial Intelligent techniques to re
sented in this work.

Keywords: Multiagent Systems, H
Network Security, Intrusion Detect
liberative Process.

1 Introduction

Softcomputing techniques and para
Detection Systems (IDSs) [1]. M
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Emilio Corchado · Paulo Novais · Cesar Analide · Javier Sedano (Eds.)

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This volume of Advances in Intelligent and Soft Computing contains accepted papers presented at SOCO 2010 held in the beautiful and historic city of Guimarães, Portugal, June 2010. This volume presents the papers accepted for the 2010 edition, both for the main event and the Special Sessions. SOCO 2010 Special Sessions are a very useful tool in order to complement the regular program with new or emerging topics of particular interest to the participating community. Special Sessions that emphasize on multi-disciplinary and transversal aspects, as well as cutting-edge topics were specially encouraged and welcome.

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