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Aggregation of security attributes based on the granularity level of the system

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Artemij Voskobojnikov

Student ID: 4557770

voskobojnikov.artemij@gmail.com

First Reviewer: Prof. Dr. Jörn Eichler
First Reviewer: Prof. Dr. Marian Margraf

Berlin, <Datum>

Affirmation of independent work

I hereby declare that I wrote this thesis myself without sources other than those indicated herein. All parts taken from published and unpublished scripts are indicated as such.

Berlin, <date>

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(Artemij Voskobojnikov)

Acronyms

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Abstract

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1 Introduction

Security concepts can be used to capture the interacting system components, potential threats and countermeasures.

For big information systems such concepts can become very large because of the number of the involved sub-systems/components. Interconnectivity and interdepence amongst components may increase the overall system complexity and it might be therefore difficult to detect all potential impacts [**?**].

Methods for system abstraction that address this problem already exist. The abstraction here is the creation of representation layers which only reflect relevant properties of a system and therefore provide a better level of understanding for the respective user [1]. This for example can be achieved by different projections which reflect different granularity levels of a system displaying different levels of details [2].

In the security context such projections could be used to focus on the security or insecurity of certain sub-systems. Security attributes of components could thus be viewed separately and the security risk for a respective component could be derived. Further, an aggregation of security attributes based on the chosen projection will become possible and correspondingly a potential information gain.

The goal of this thesis is to provide an approach which makes it possible for a user to select a sub-system of interest, i.e. a projection which reflects a certain granularity level and provides the corresponding security attributes. The relevant attributes as well as dependencies and possible aggregations should be shown to ensure an overall complete picture of the selected sub-system.

2 Background

3   Stuff

References

[1] Klaus Pohl, Harald Hönninger, Reinhold Achatz, and Manfred Broy. *Model-Based Engineering of Embedded Systems: The SPES 2020 Methodology.* Springer Publishing Company, Incorporated, 2012.

[2] Judith Thyssen, Daniel Ratiu, Wolfgang Schwitzer, Alexander Harhurin, Martin Feilkas, and Eike Thaden. A system for seamless abstraction layers for model-based development of embedded software. In *Software Engineering (Workshops)*, pages 137–148, 2010.