Secure System of Attack Patterns towards Application Security Metric Derivation

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Abstract

Attack pattern system exhibits a unique property of pattern sequential cascading nature which can be identified during the design phase of an application system implementing security scenarios. In this paper a mathematical framework of secure system of attack patterns is presented to verify the stated design specification property along with theoretical background work. The framework defines 12 definitions of secure system of attack patterns, propositional transition system, computable functions and other supported elements. The framework establishes 15 specifications with associated lemmas and theorems to construct and build the background towards verification of proposed system. Finally the proposed attack pattern system is assessed against the number of patterns, resources and other pattern properties with the help of simple security scenario.

References

- W Thomas, "Automata theory and Infinite Transition Systems," Lecture notes,
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University of Liege, DAAD Procope Project, May 2006, pp 1-12

Index Terms

Computer Science
Pattern Analysis

Keywords
Secure system of attack patterns
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Configuration mapping
cascadability of points
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