**LITERATURE SURVEY**

**2.1 INTRODUCTION**

**1) Model driven security for web services**

**AUTHORS:**  MM Alam et al.

Model driven architecture is an approach to increase the quality of complex software systems based on creating high level system models that represent systems at different abstract levels and automatically generating system architectures from the models. We show how this paradigm can be applied to what we call model driven security for Web services. In our approach, a designer builds an interface model for the Web services along with security requirements using the object constraint language (OCL) and role based access control (RBAC) and then generates from these specifications a complete configured security infrastructure in the form of Extended Access Control Markup Language (XACML) policy files. Our approach can be used to improve productivity during the development of secure Web services and quality of resulting systems.

**2) Run-time generation, transformation, and veriﬁcation of access control models for self-protection**

**AUTHORS:** Chen, Bihuan; Peng, Xin; Yu, Yijun; Nuseibeh, Bashar and Zhao, Wenyun (2014).

A self-adaptive system uses runtime models to adapt its ar-chitecture to the changing requirements and contexts. How-ever, there is no one-to-one mapping between the require-ments in the problem space and the architectural elements in the solution space. Instead, one reﬁned requirement may crosscut multiple architectural elements, and its realization in volves complex behavioral or structural interactions manifested as architectural design decisions. In this paper we pro-pose to combine two kinds of self-adaptations: requirements-driven self-adaptation, which captures requirements as goal models to reason about the best plan within the problem space, and architecture-based self-adaptation, which cap-tures architectural design decisions as decision trees to search for the best design for the desired requirements within the contextualized solution space. Following these adaptations, component-based architecture models are reconﬁgured using incremental and generative model transformations. Com-pared with requirements-driven or architecture-based approaches, the case study using an online shopping bench-mark shows promise that our approach can further improve the eﬀectiveness of adaptation (e.g. system throughput in this case study) and oﬀer more adaptation ﬂexibility

# 3. Towards development of secure systems using umlsec.

**AUTHORS:** **Jan J¨urjens**

We show how UML (the industry standard in object-oriented modelling) can be used to express security requirements during system development. Using the extension mechanisms provided by UML, we incorporate standard concepts from formal methods regarding multi-level secure systems and security protocols. These definitions evaluate diagrams of various kinds and indicate possible vulnerabilities.On the theoretical side, this work exemplifies use of the extension mechanisms of UML and of a (simplified) formal semantics for it. A more practical aim is to enable developers (that may not be security specialists) to make use of established knowledge on security engineering through the means of a widely used notation

**4.** **Cloud computingthe business perspective**

**AUTHORS:** Sean Marston et al

The evolution of cloud computing over the past few years is potentially one of the major advances in the history of computing. However, if cloud computing is to achieve its potential, there needs to be a clear understanding of the various issues involved, both from the perspectives of the providers and the consumers of the technology. While a lot of research is currently taking place in the technology itself, there is an equally urgent need for understanding the business-related issues surrounding cloud computing. In this article, we identify the strengths, weaknesses, opportunities and threats for the cloud computing industry. We then identify the various issues that will affect the different stakeholders of cloud computing. We also issue a set of recommendations for the practitioners who will provide and manage this technology. For IS researchers, we outline the different areas of research that need attention so that we are in a position to advice the industry in the years to come. Finally, we outline some of the key issues facing governmental agencies who, due to the unique nature of the technology, will have to become intimately involved in the regulation of cloud computing.

# 5. An Extensive Systematic Review on Model-Driven Development of Secure Systems

**AUTHORS:** PhuHNguyenetal

Model-Driven Security (MDS) is as a specialised Model-Driven Engineering research area for supporting the development of secure systems. Over a decade of research on MDS has resulted in a large number of publications. Objective: To provide a detailed analysis of the state of the art in MDS, a systematic literature review (SLR) is essential. Method: We conducted an extensive SLR on MDS. Derived from our research questions, we designed a rigorous, extensive search and selection process to identify a set of primary MDS studies that is as complete as possible. Our three-pronged search process consists of automatic searching, manual searching, and snowballing. After discovering and considering more than thousand relevant papers, we identified, strictly selected, and reviewed 108 MDS publications. Results: The results of our SLR show the overall status of the key artefacts of MDS, and the identified primary MDS studies. E.g. regarding security modelling artefact, we found that developing domain-specific languages plays a key role in many MDS approaches. The current limitations in each MDS artefact are pointed out and corresponding potential research directions are suggested. Moreover, we categorise the identified primary MDS studies into 5 principal MDS studies, and other emerging or less common MDS studies. Finally, some trend analyses of MDS research are given. Conclusion: Our results suggest the need for addressing multiple security concerns more systematically and simultaneously, for tool chains supporting the MDS development cycle, and for more empirical studies on the application of MDS methodologies. To the best of our knowledge, this SLR is the first in the field of Software Engineering that combines a snowballing strategy with database searching. This combination has delivered an extensive literature study on MDS.

**2.2 EXISTING SYSTEM**