



Computational Model of the Tangled Web

Viacheslav E. Wolfengagen¹, Larisa Yu. Ismailova¹, and Sergey Kosikov²

¹ National Research Nuclear University “MEPhI”
(Moscow Engineering Physics Institute),
Moscow, 115409 RF,

jir.vew@gmail.com and lyu.ismailova@gmail.com

² Institute for Contemporary Education “JurInfoR-MGU”,
Moscow, 119435 RF,
kosikov.s.v@gmail.com

Abstract

In this paper we attempt to build computational models of entanglement among the event-driven computations. The proposed model operates on the notion of dynamics of the events. This allows selection of entanglement zone that characterizes the area of risks where possible vulnerability and, as a consequence, security violations of web application arise. All constructions for objects are treated as virtual objects. The stated range of issues focuses on computational technologies used scripts, though other explanatory systems are admissible as well but within other appropriate contexts.

Keywords: event-driven computations, scripts, vulnerability, information security, computational model, tangled web

Preamble

The mechanism of occurrence of a script injection vulnerability by tangling controlled scripts events is proposed. A similar effect can obviously be avoided to prevent its emergence by a special organization of software development. This research can be seen in a broader context, but then there is a need to develop a model of the evolution of web-based system. An attempt is done to systematize how the XSS-vulnerabilities arise, and why it is so hard to avoid them in the real world of the web development application software. In practice, it is possible to offer special software design patterns, similar to those developed in Google to solve this problem.

Introduction

The current network environment has radically changed information environment [12]. The most important principles of privacy and information security, which in the recent past are

respected without any complications, are now systematically exposed to various small and large disturbance [4], [10]. The past generation of people was formed, regardless of the network. From now on, when the web mechanisms have begun to play an increasingly dominant role in the socialization of people, it was tangling in the broad sense of human community network [11]. But since so far the Web infrastructure is created without taking into account the privacy, the entanglement are at stake, our fundamental freedoms. For example, a book that used to read by yourself in the privacy of your own mind, is replaced with a device that keeps track of your reading for the bookseller.

Tangling in a more narrow context of technology is understood somewhat differently [7]. This mixing in the actual work on the network competing web browsers, which are often implemented before the standards they follow are completed, web-based applications that provide users with the opportunity to participate in e-commerce, a variety of online banking, as well as multiple types of confidentiality access to information through the Internet. This gives an environment ripe for exploitation by various technologically savvy individuals in the spectrum from simple mischief to cybercrime. In this kind of tangling resulting losses due to all sorts of technological deficiencies range from identity theft to denial of service, from the inconvenience of work to large financial losses. These conditions create an environment in which security engineers and web developers need full assistance just to keep up with the variety of emerging and used in network technology solutions.

Finally, there is tangling generated from features massively used to navigate through the software network [5], [6] which is usually based on the use of events and the associated scripts.

All this taken together creates environment information of human habitation, which is characterized by the term “tangled web”, and the security management of modern Web applications offer assistance to persons endowed with an appropriate level of understanding and due for negotiation in this environment authority. However, there is no understanding of the mechanism of entanglement and its attendant vulnerabilities, expressed at the appropriate level of abstraction [2], [3], [14], rather than in terms of short-term technological patches. Versatile enough to simulate the behavior of abstract design objects offered in [13], and their specialization in the area of information systems implemented in [8]. Efficiency of use for this purpose virtual worlds settles in [1], as well as an abstract framework closest considered [9].

In this paper we attempt to build computational models of entanglement among the event-driven computing. The proposed model operates the idea of entanglement based on (t)-dynamics of events. This allows to select entanglement zone that characterizes the area of risk where possible vulnerability and, as a consequence, security breaches of web application performance can occur. Section 1 considers tangling scripts for event-driven computing. Section 2 shows the construction of a model representing the dynamics of entanglement. Section 3 discusses the main sources of possible technological tangling.

1 Tangling scripts

The mechanism of entanglement, which is intrinsic to the event-driven computing, gives rise to a security threat. Mixing occurs when the need for indirect addressing information resource occurs and rarely in case of direct addressing. In any case, the event handler script is used, which can be overridden with different goals and intentions. At the same time there is a vulnerability that could lead to disruption of normal operation of the Web application.

Vulnerabilities that allow a substitution by injecting script that are the scourge of web application development. They are deceptively simple damage of protection, but in large-scale web designing they are surprisingly difficult to prevent. With the lack of verification of the

Download English Version:

<https://daneshyari.com/en/article/4962279>

Download Persian Version:

<https://daneshyari.com/article/4962279>

[Daneshyari.com](https://daneshyari.com)