

Malvertisements Detection using urlscan.io, Pulsedive, and SucuriSiteCheck

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Abstract:

As revenue on online advertisements continues to grow, Cybercriminals are mingling with the technology organisations to publish and run unsolicited adverts. Advertising companies actually have means of maximising visits to the advertiser' website but they have no control on the contents obtained from the ads auctioned to other providers such as yahoo and Facebook. Such contents may contain unauthorised scripts that may be rerouted to malicious sites where malware could be installed or malicious codes executed. This study therefore presents and implements an automated malvertisement detection system (MDS) by employing three common online detection tools or Intrusion Detection Systems (IDSs) – Pulsedive, SucuriSiteCheck, and Urlscan.io - to crawl malicious ads from 450 websites and represent the results on the confusion matrix. The malvertisement system is real and functional but less effective. When performance metrics were applied on the results. None of the IDSs outperformed the others in all the measures, suggesting that a single metrics is insufficient to objectively measure the effectiveness of the IDSs. An improved performance is expected when other set of IDSs is used in combination to build the MDS.

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I. Introduction

Online advertising has grown in scope offering marketers and producers avenues to reach a wider audience through the use of technologies. It is more of a search engine, web browser, mobile device or social media[1], [2] with a strong ability to reach the targeted audience. It improves users-products interaction and saves product delivery time while paving ways for marketers to appreciate the acceptability of the product brands [3]. Online adverts and ecommerce remain the main sources of income for technology companies including Yahoo,

Facebook and Google[4]. However, online advertising poses a great threat to the security and privacy of users since technology advancement has enabled cybercriminals to devise several ways of evading security measures leading to the emergence of new attacks such as code obfuscation, URL redirection, vulnerability exploitation and malware installation [5]. These types of attacks launched through online advertisements are known as malicious advertisements.

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