**ABSTRACT**

Mobile specific web pages differ significantly from their desktop counterparts in content, layout and functionality. Accordingly, existing techniques to detect malicious websites are unlikely to work for such web pages. In this paper, we design and implement kayo, a mechanism that distinguishes between malicious and benign mobile webpages. KAYO makes this determination based on static features of a webpage ranging from the number of iframes to the presence of known fraudulent phone numbers. First, we experimentally demonstrate the need for mobile specific techniques and then identify a range of new static features that highly correlate with mobile malicious webpages. We then apply kAYO to a dataset of over 350,000 known benign and malicious mobile webpages and demonstrate 90% accuracy in classification. Moreover, we discover, characterize and report a number of webpages missed by Google Safe Browsing and Virus Total, but detected by kAYO. Finally, we build a browser extension using kAYO to protect users from malicious mobile websites in real-time. In doing so, we provide the first static analysis technique to detect malicious mobile webpages.

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