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ParkedGuard: An Efficient and Accurate Parked Domain Detection System Using Graphical Locality Analysis and Coarse-To-Fine Strategy

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Abstract : As world wild internet has non-stop developments, making profit by lending registered domain names emerges as a new business in recent years. Unfortunately, the larger the market scale of domain lending service becomes, the riskier that there exist malicious behaviors or malwares hiding behind parked domains will be. Also, previous work for differentiating parked domain suffers two main defects: 1) too much data-collecting effort and CPU latency needed for features engineering and 2) ineffectiveness when detecting parked domains containing external links that are usually abused by hackers, e.g., drive-by download attack. Aiming for alleviating above defects without sacrificing practical usability, this paper proposes ParkedGuard as an efficient and accurate parked domain detector. Several scripting behavioral features were analyzed, while those with special statistical significance are adopted in ParkedGuard to make feature engineering much more cost-efficient. On the other hand, finding memberships between external links and parked domains was modeled as a graph mining problem, and a coarse-to-fine strategy was elaborately designed by leverage the graphical locality such that ParkedGuard outperforms the state-of-the-art in terms of both recall and precision rates.

Keywords : coarse-to-fine strategy, domain parking service, graphical locality analysis, parked domain
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