Khaleesi : Breaking The Advertising & Tracking Redirect Chains

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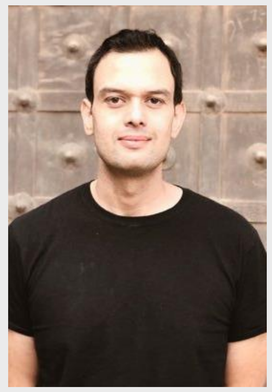


Overview

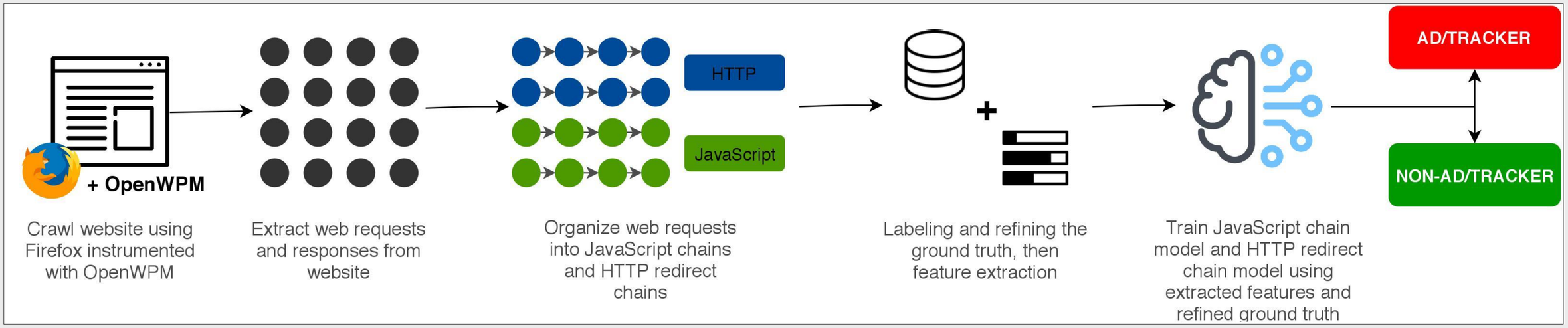
- ❑ Ads and Trackers are downloaded after several dynamic HTTP redirects
- ❑ Current state-of-the-art solution rely on static filter lists and they fail when URLs change dynamically
- ❑ We propose **Khaleesi** a machine learning based online solution that blocks ads and tracking redirect chains

Problem Statement

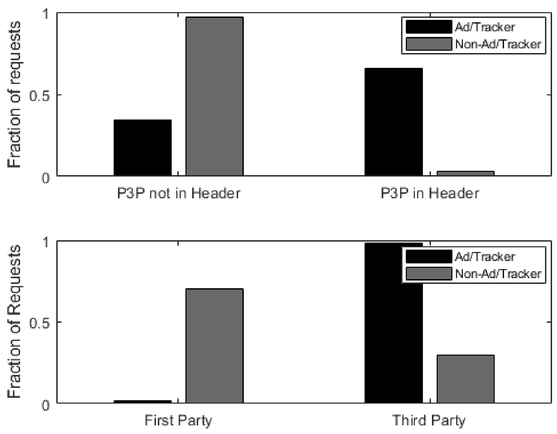
- ❑ Redirects are vital to many aspects of online advertising and tracking (e.g. cookie syncing, HSTS super cookies, RTB)
- ❑ Web requests involved in redirection are 32% more likely to be related to advertising or tracking
- ❑ Redirect chains are dynamic and they evade filter lists

Approach

- ❑ Model HTTP redirects and sequence of JavaScript request as chains
- ❑ Train a machine learning model by leveraging the sequential flow of information
- ❑ Provide an extension based implementation to block redirect chains in real time

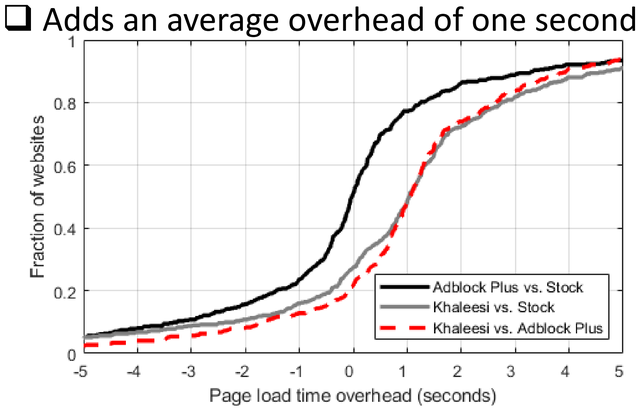


Features



Performance

- ❑ Faster than Adblock Plus on 22% of sites
- ❑ Adds an average overhead of one second



Key contributions

- ❑ 99.85% accuracy (~8% improvement over state-of-the-art)
- ❑ Using contextual information improves the accuracy
- ❑ Online implementation with negligible overhead

Award ID#: