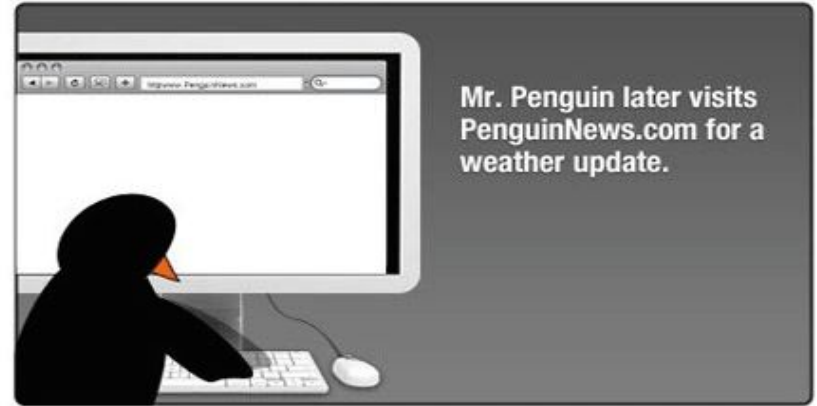


Web Never Forgets : Tracking Mechanisms in digital advertising

COMP 531 Presentation
Yusong Shen
ys43@rice.edu

Mr. Penguin's Story about Behavioral Advertising

Frame 05 - Penguin types in new URL

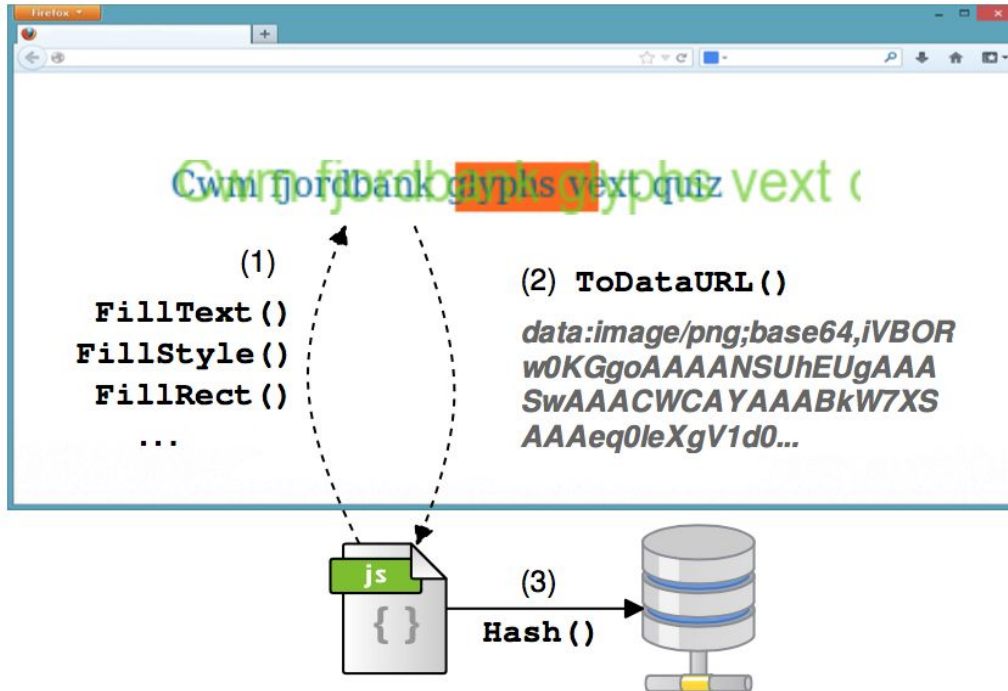


Frame 06 - News site loads up and, penguin reads for a second and glances at ad and is surprised to see his preference



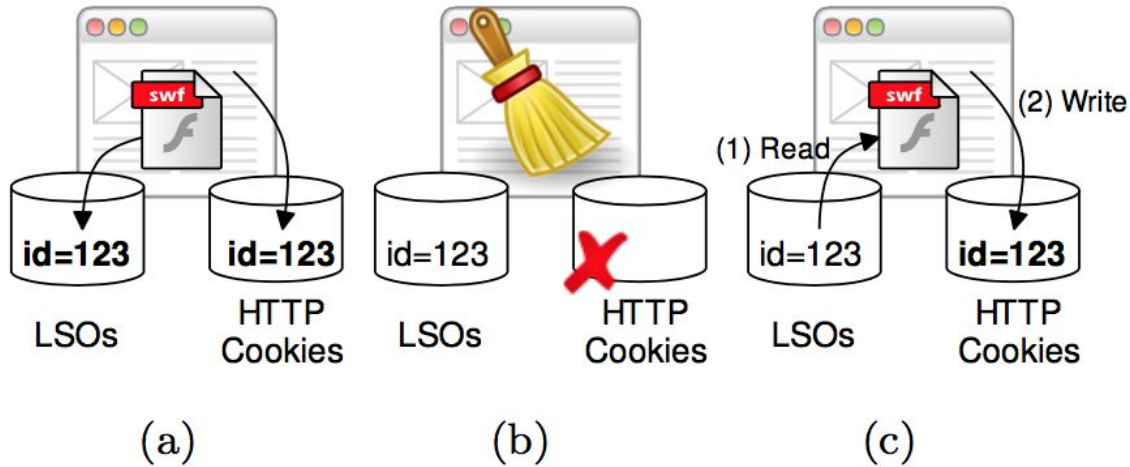
Image source : <https://blog.kissmetrics.com/behavioral-advertising/>

Canvas Fingerprinting



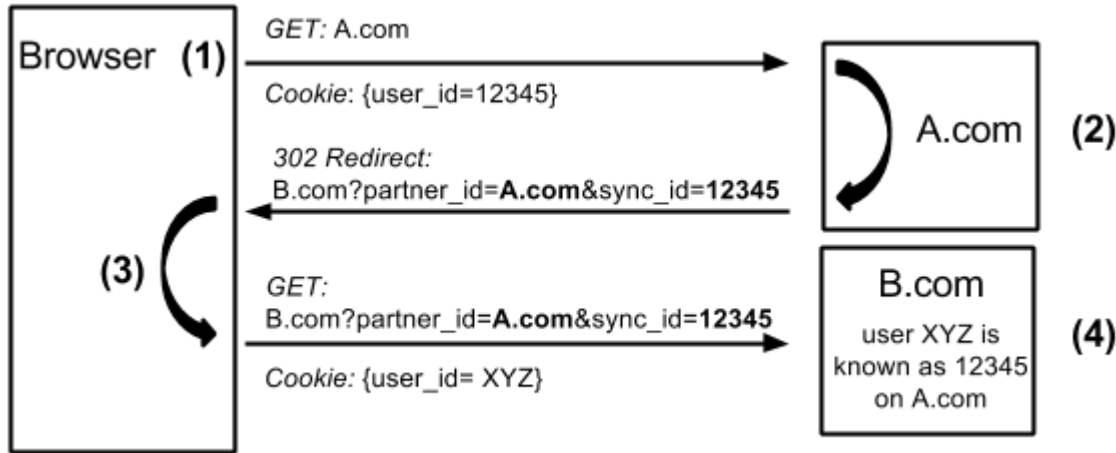
By using the Canvas API of modern browsers, one can exploit the subtle differences in the rendering of the same text to extract a consistent fingerprint

Evercookie



It utilizes multiple options to store cookie, like HTTP cookie, FLASH cookie, IndexedDB etc. and respawn cookie even after some of the storages get removed.

Cookie Syncing

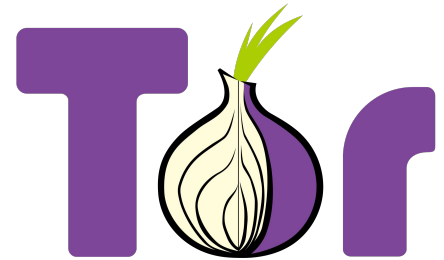
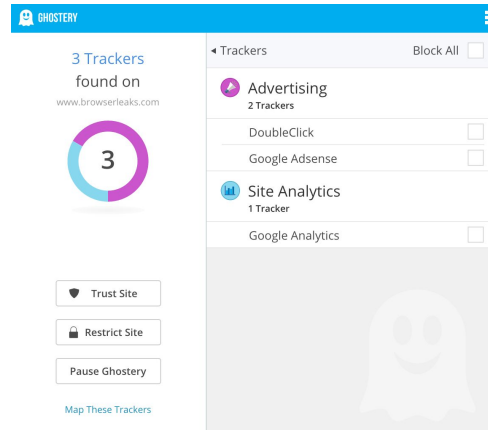


User ID Synchronization
between backend servers
combined with Evercookie

The process begins when a user visits a site (say example.com, not shown in the figure), which includes A.com as an embedded third-party tracker.

How to Defense

- Browser Privacy Setting is helpful but not enough
- Tor Browser
- Ghostery Browser Extension



Conclusion and Takeaway

Three Tracking Mechanisms :

- Canvas Fingerprinting
- Evercookie
- Cookie syncing

As a user's point of view:

- Using tools like Tor or Ghostery to better protect privacy

As a site owner or developer:

- Knowing how third-party tracking tool works

Reference

1. Acar, Gunes, et al. "The web never forgets: Persistent tracking mechanisms in the wild." Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security. ACM, 2014.
APA
2. Simon Hill, "[How much do online advertisers really know about you?](#) "



Thank you!