Client Fingerprinting Techniques

Team #7: Alex Feng, Tristan Luther, Yuna Oh

1. Summary: Give a 3-4 sentence summary of your project.

We are going to be covering client fingerprinting techniques used by websites. Client fingerprinting is a tracking technique to collect information about users. This data can be used for a variety of purposes such as analytics, advertising, and fraud detection. We will demonstrate these techniques in an implementation based project.

2. What more general concepts does your project illustrate?

We will cover some of the more common client fingerprinting techniques used by websites in a security application example. Some of these techniques include cookie tracking, device fingerprinting, and location identification. We will explain what these techniques are, how they're used, and why they may be beneficial.

3. What are the 2 or 3 most important ideas/concepts that you plan to convey about this topic in a presentation?

The most important concepts that we want to convey are simply what client fingerprinting is, how does it affect everyday users, and what are the security concerns created and resolved by implementing client fingerprinting.

4. How will you show/demonstrate these important concepts?

We will first deliver a presentation that goes over the concept of client fingerprinting and its use cases. Then we'll explain some of the common techniques used by websites. Lastly we'll showcase a website that demonstrates these techniques in a real application.

5. How will you ensure that no one is harmed by your project/demonstrations?

Our presentation will include a website developed by us for testbench uses. User data will only be stored temporarily for the purposes of our demo of client fingerprinting in the real world. This website cannot be used to exploit and use the data of visitors in any way besides looping it back to them.

6. What software system (if applicable) will you build to demonstrate these network security concepts? And what existing software will you use, what new code will you need to write?

We will be developing a simple website that allows an user to login and be notified whenever they sign into a new location or device or other suspicious reasons. For example, it is like when you sign into your bank or email account from another device or location and get a message to verify your email or phone.

PHP will be used to create the website. It will be hosted on an ENGR server so it can be tested in a public setting. We will be using Google Firebase to handle our login so that we can focus more of our time on the development of client fingerprinting.

7. What resources have you identified that will be useful for your preparation?
   a. Research
      i. Online articles, stories, papers, etc.
      ii. Google slides
   b. Project
      i. PHP tutorials
      ii. ENGR server for hosting our website
      iii. Firebase for login authentication
      iv. Online resources for learning how to use client fingerprinting technology

8. What are the planned roles and responsibilities of each team member?

Alex
- Design login pages
- Setup login
- Gather device info (e.g. OS, device specifics, version, timezone)

Tristan
- Client Data Interface Layout (website)
- Location based fingerprinting research/implementation
- General Presentation Research

Yuna
- Design Home page
- Implementation logic for notification new login
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