Project Title

Your Privacy Is Important To Us

Project Description

This project is an installation, intended to make people think.

Before we start, let's make this clear: this project is a passive man-in-the-middle attack, on a doctored router. It *is* legal: You will be providing a password protected WiFi access point, with a gateway notification to your incoming users. You will be providing this as a service. It is NOT an open access point.

A recent article referenced work done by security researchers to look at data transmitted and received by common smartphone apps. This work intercepted data 'maliciously' by inserting an invalid TLS certificate, which is a relatively sophisticated exploit. It did, however, expose alarming vulnerabilities in apps which people potentially use every day. See the update here

We would like to give people a better understanding of what is out there on the internet.

We'd like them to consider what happens when they connect to a WiFi access point with their phone or tablet.
There is a limitation as to what we can show them, because their data traffic is (mostly) encrypted. (see above) However, we can show them where their traffic is going, and how much.

We can also look up IP address ranges (like many others do) and check their affilliation. From this we can make inferences about the type of traffic and its intent.

On connection the router will inform a user that they are part of an experiment, and that their traffic information will be displayed for everyone to see. THIS IS REALLY IMPORTANT. YOU MUST GIVE USERS THE OPTION TO EXIT.

Attached to the router is a mini-pc, with a large public display screen.

The mini pc displays a web-page, generated by the server in the router. The web page displays the aggregated traffic information.

You will use the open source firmware OpenWRT, to customise a Netgear WNDR3800 router (it's a nice router). You will gain knowledge of the underlying Linux operating system, enough to configure and aggregate traffic through the WiFi network interface. You will visualise data through serving web pages on the embedded HTTP server, via Lua. Take a look at lightbeam if you want some inspiration - note: lightbeam operates in a different way to this method - it uses cookies).

What information can you display about the traffic, the amount of traffic, per individual connection, and on aggregate? What inferences can you draw? What can you show to people that they may not already know? People may actually be shocked that you can do *anything*.

Experience Areas

This project will allow members to gain and exercise knowledge and experience in the following areas:

*Privacy and its importance
*OpenWRT
*Packet Sniffing
*Router Traffic Display
*Knowledge of the acronym RTFM
*Flashing embedded OS
*Router Hardware
*Embedded web servers.
*Lua and LuCI (see also openWRT's page on LuCI)
*Aggregation and visualisation
*virtual box (if you have no hardware)

Possible costs

Netgear WNDR3800 c. £50

Equipment or Accounts needed

No Accounts Needed

Deliverables

See 'Your Project Deliverables'.