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State of the art:**

The function of a router is to route packets based on the Internet protocol address and several other criteria. Some of the giants in today's world manufacturing these routers are multinational corporations Cisco, Juniper, Netgear, etc. Anything additional to routing a router does is a bonus and an enhancement. What differentiates the Netgear router from the rest is their ability to have applications running on the router without affecting the router's performance.

The purpose of the privacy router project is to enhance the user's internet experience. The entire working application and information about the user is stored only on the router. Currently, to provide this feature and better user experience, the web servers use cookies to monitor the user's profile. They constantly monitor the user and each web server creates a profile based on the user without the user's knowledge. These cookies are called tracking cookies or persistent cookies. For example, facebook.com have cookies that monitor your web traffic constantly thus providing relevant ads on your Facebook wall.

Some of the world renowned websites such as Amazon.com, Facebook.com, Google.com have good security and the user's data can be considered safe. But, these are not the only web servers out there. Each webpage accessed, creates several hypertext transfer protocol requests to third party ad-servers that monitor the user traffic without the knowledge of the user. The privacy router application prevents this from happening. It also provides additional features for user profiling and recreating relevant ad-requests. It creates a profile for the user based on his web surfing. This profile is stored on the router itself. The outside world will not know anything about the user. This profile is also used to create ad-requests that generate relevant ads for this user. The application also eliminates tracking cookies before they are set on the browser.

The application has a proxy server is created on the Netgear router. Any hypertext transfer protocol request made by the user, that is, any webpage a user accesses on the browser is redirected through the proxy server on the router. The proxy server can read the outgoing hyper text transfer protocol requests and also read the incoming http response. By being the man in the middle, manipulations can be made to the outgoing requests and incoming response. The main region of operation of this application is in the application layer(Layer 7). The protocol observed is the hyper text transfer protocol.