Net Notes:
An Ergo Node
In a web browser

By:

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Introduction

A. Perfection and Boundaries

There is very often no perfect solution when an application must cross boundaries in order to perform it's function. From the point of view of an application, the most ideal solution is to not rely on variables which are outside of the applications scope of control. This ensures security, consistency, reliability and integrity.

However, applications are not made for the sake of applications. They are made for the use of people, who are by their very nature, outside of the applications scope of control. This means that applications must accept less than ideal circumstances in order to function and conversely, that the closer they approach perfectection the more useless they become.

An example of this degredation of usefulness as the application approaches perfection, is the use of passwords. Once the password is lost for an application, the application is useless, however a lost password is also perfect security for the application.

B. Evolving Boundares and Technological Canibalism

As the capabilities of internet browsers, and browser based applications increases, the natural tendancy of applications to increase their scope as previously discussed, leads to browsers internaling more and more functions, to the point where a web browser may begin to resemble an operating system.

The advantage to this migration, from the point of view of web applications is perfection, the disadvantage is that the boundaries and values which they represented, are erroded to the point where the base operating system will eventually be consumed by the web browser, and the previous values which corresponded to the OS will be relegated to the realm of the Aesthetic. Marshal McLuhan discusses this phenomenon of technological canibalism in his 1964 'Notes on Burroughs.'[1]

> *The previous environment with all its private and social values, is swallowed by the new environment and reprocessed for whatever values are digestible. Thus, Nature was succeeded by the mechanical environment and became what we call the "content" of the new industrial environment. That is, Nature became a vessel of aesthetic and spiritual values. Again and again the old environment is upgraded into an art form while the new conditions are regarded as corrupt and degrading.*
> *-Marshall McLuhan (1964)*

McLuhan goes on to assert that in order to accept the environment of ones own age (for example Web3) it takes a degree of temerity, that is not common among professionals, as the professional bias is to accept the new environment based on the rules of the old one, however obsolete or redunant those values may be.

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1 Marshal McLuhan: Notes on Burroughs 1964 (https://realitystudio.org/criticism/notes-on-burroughs/)

Net Notes

A. Consuming Ergo

The most direct approach for a web browser to interact with a P2P node, like Ergo, would be for the browser to consume it entirely, and therefore eliminate the cross boundaries issues that can occur. However, while this may be the most perfect solution for the browser, the best solution for Ergo would be to consume the browser. In this way the values and boundaries which make Ergo valuable would be translated to the browser, rather than the other way around.

Developing a browser for this purpose is well out of the scope and intention of this paper, and therefore a hybrid solution is proposed, which allows Ergo to maintain it's current boundaries (and assumptions thereof), and also allows current browser technology to interact with the node natively without exerting, or consuming it entirely.

B. Hybrid Interaction

In order to acomplish native interaction a shared base level transfer mechanism is required, which both the operating system, and the node may presume full control over.

The base level mechanism which allows for this is to utilize file based communication. This is similar to how students may pass notes to one another in class, without the allowance of the authority which wishes to maintain control over the system which they are in.

C. Why Notes and not TCP?

While TCP is the messaging protocol of Web1 and Web2, Web3 is multi-layered and is introducing more and more native functions of the OS to the web. One of these functions is the ability to interact with the native file system through the use of file handles. File handles offer uninterupted access to the native OS, which are not filtered through external sources and actors.

This allows the application to be Cross-Resource (CORS) secure, and also allows the user a greater degree of autonomy from the wider web. In fact, the browser would be able to interact with the node in offline mode, as the browser would not be utilizing network interfaces at all.

D. Intercepting Notes and Ciphers

The most evident vulnerability to file based communication is obvious based on the example given for note passing in a class; that is for the teacher to intercept the note and read it. Clever students who anticipate their note being intercepted and wish to be one step ahead of the teacher will employ a code which allows the student to communicate without the actual subject matter being brodcasted.

E. The Solution

The solution propsed by this paper is Net Notes, an application which consumes the node on the native level, and then communicates with the web browser using file notes which are both symmetrically and assymetrically encrypted in order to maximize their security, both within the session which they are created, and forensically in the future.