Chapter 5

Conclusion

1. Discussion

During the course of this project, the author had the opportunity to deliver on his expertise in programming as well as pick up previously unknown paradigms. A Windows Communication Foundation service hosted in a Windows service was implemented in order to act as a communication channel between a privacy preserving social network and a client-side standalone application. This system replaces the previous installation of a Java Applet that acted as the communication bridge.

The current design utilizes the concept of endpoints in a WCF service. The webpage communicates via AJAX calls to these endpoints. The WXF service picks up the data and writes it to a file. This file is read into the client-side standalone application, which in turn writes the modified contents into a second file in another folder. This folder is watched for changes by the Windows service, the one hosting WCF service. If the file changed, is the one desired, the contents are read and sent to the WCF service. The WCF service packages it as XML and sends it back to the webpage that had initiated the call.

All of this process has the worse case time of 70 milliseconds. It is secure enough as no outside process can damage the client. Even if malicious script is sent through the AJAX call, the client will not recognize it as any action and hence not run it.

2. SWOT analysis

The current implementation has the following features,

* Strengths
  + Unlike the previous implementation, there is no load time for the Windows service to run. The service needs to be started only once. Every page loads without having to wait for the Windows service to run before.
  + WCF makes sure that third party creations such as this are always allowed in the system and will never go out of support.
  + All the previous Online Social Network functionalities have been kept alive in this implementation. This tool is totally backward compatible.
  + The worst-case time from the AJAX call received to the response sent back is negligible at 70 milliseconds.
  + No user interaction is required. Unlike the previous implementation, the user does not handle pop-ups for Java approval at all.
  + The file handling system is cleaner as the file watcher system included in the Windows service now listens for events instead of polling for changes.
  + The Windows service and WCF service interaction is bare minimum keeping in mind the security point of view.
  + On the webpage, AJAX calls have replaced setting content and action of Java Applets. This has made the code run smoother.
* Weaknesses
  + It is cumbersome to debug if the system is not performing up to the expectations.
  + If the future implementations on the eFacebook system involve loads of data being transferred in one AJAX call, it could lead to the file system coming under lot of scrutiny and the system may have to change to combat that.
* Opportunities
  + Currently the system works on any machine that is running Windows 98 and above. This system can surely be extended to multiple Operating Systems such Unix (Daemons).
  + The whole data exchange through file system can be changed to a more secure and less open option.
* Threats
  + Dual Use of Concern has always been a major player in any new technology. If one can create such a complicated system, rest be assured that certain trapdoors can creep up in the system. We have to be wary of unwanted use of our technology.

3. Future Works

The following tasks can be completed in the future versions of this project,

* This system can be extended to other Operating Systems too. The idea can remain the same. Only differences that can happen are related to the language used and the compatibility of the same with the server-side technology.
* The file system can be replaced by a slicker option that does not expose data to the user at all. Probably have a system that directly passes the data to client-side standalone application. This can further decrease the time taken to communicate.
* Lastly, this implementation can be extended to cover eTwitter application created by Do Hoang Giang as detailed in his Final Year Project thesis, Privacy Preserving Online Social Network.