On the misuses of real world large scale distributed systems

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Overview

The explosion of Web 2.0 has created a collection of large on-line communities. These on-line communities can be misused in various ways. In this thesis we investigate methods for misusing modern web systems as well as defenses for well-known attack techniques.

Social Networks

Social networks seem to have the ideal properties for becoming attack platforms. A large collection of web browsers is viewing at the same time the same content. In addition, web browsers are operated by users who share trust with each other. Thus, malicious content can be easily propagated through the social mesh.

Elias Athanasopoulos et al.
Antisocial Networks: Turning a Social Network into a Botnet. *ISC 2008.*
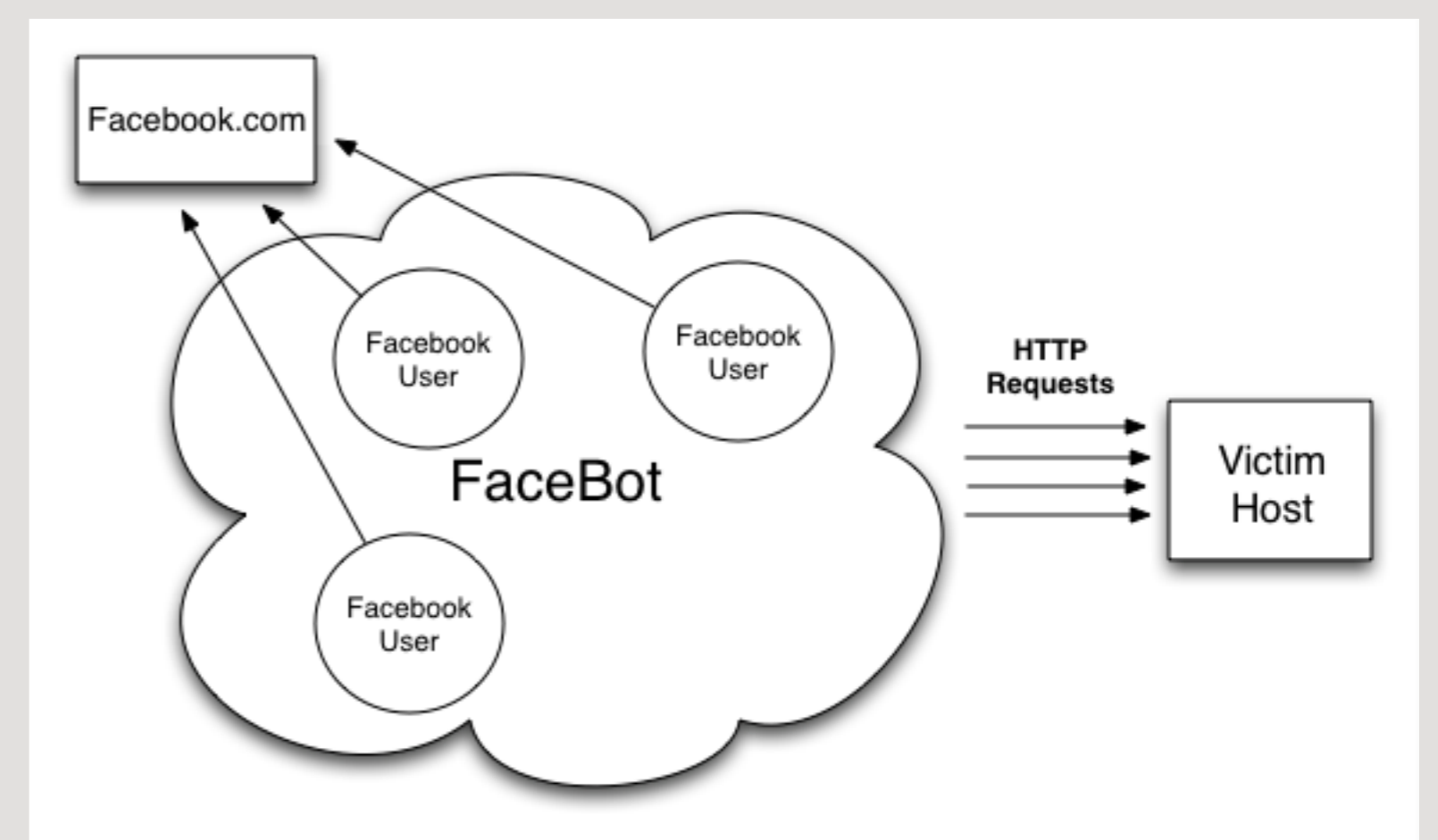
Web Security

One of the most profound techniques for exploiting web applications is through a Cross-Site Scripting (XSS) attack. In this part we have identified new XSS attacks that resemble to the *return-to-libc* attack in native code and we have proposed a complete XSS mitigation scheme based on Isolation Operators.

Elias Athanasopoulos et al. **Code-Injection Attacks in Browsers Supporting Policies.** *W2SP 2009 (co-located with Oakland 2009).*
Elias Athanasopoulos et al. **xJS: Fighting Cross-Site Scripting Attacks Using Isolation Operators.** *Under submission.*

Parasitic Storage

Nowadays, we are experiencing a vast growth of web services for e-mail, picture galleries and file hosting. In this part we develop a complete file system, *ParasiticFS*, that aggregates all storage for various free on-line services and offers it to the user.

Elias Athanasopoulos et al. **Parasitic Storage: Free and Globally Accessible Gigabytes.** *Submitted to HotStorage 2009.*

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