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Proxies for anonymous routing

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Using traffic analysis, it is possible to infer who is talking to whom over a public network. This paper describes a flexible communications infrastructure, called onion routing, which is resistant to traffic analysis. Onion routing lies just beneath the application layer, and is designed to interface with a wide variety of unmodified Internet services by means of proxies. Onion routing has been implemented on a Sun Solaris 2.4; in addition, proxies for World Wide Web browsing (HTTP), remote logins (RLOGIN), e-mail (SMTP) and file transfers (FTP) have been implemented. Onion routing provides application-independent, real-time and bi-directional anonymous connections that are resistant to both eavesdropping and traffic analysis. Applications making use of onion routing's anonymous connections may (and usually should) identify their users over the anonymous connection. User anonymity may be layered on top of the anonymous connections by removing identifying information from the data stream. Our goal is anonymous connections, not anonymous communication. The use of a packet-switched public network should not automatically reveal who is talking to whom; this is the traffic analysis that onion routing complicates

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