The Firewall Mobile Customs Agent: A Distributed Firewall Architecture

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The revolution of modern networking necessitates the use of many new security methods to protect our communications from intruders. For example, users of the Internet employ encryption methods to protect their communications from spoofing or modification, and use tunneling techniques to hide their identities; while network system administrators protect their local networks by routers and firewalls to filter the communication passing through.

Using a variety of different security tools in network communication may result in conflicts. For example, using an encryption method to protect the integrity and privacy of data may prevent a firewall from inspecting incoming or outgoing data from the local network. Effectively combining these two methods will result in a strong security system that protects the local network and the privacy of the connection; however, a true combination of technique may compromise some security features, such as the requirement of end-to-end encryption.

In this research, we define a new approach to handling the combination of encryption and firewall technologies. Our solution is based on the concept of US customs inspectors stationed in other countries. In this context they examine packages bound for the US, seal and stamp them. In a networked environment, our agent will work at the end point of the communication for inspection as a delegate of the firewall and approve legitimate packets by its signature to pass the firewall without further inspection.