



## Systems and Network Analysis Center Information Assurance Directorate

NATIONAL SECURITY AGENCY

# Enterprise Firewalls in Encrypted Environments

**With the increased usage of encrypted network communications, are enterprise firewalls still needed on the perimeter?**

Encryption protects the confidentiality and integrity of communications; however, it does not protect the availability of the hosts used to send these communications. Enterprise firewalls will still play their traditional role of protecting the hosts on a network.

There is no trend indicating all traffic from clients will be encrypted. There are too many applications relying on non-encrypted network protocols (DNS, HTTP, etc.) for them to be replaced in the next several years. That said, adoption of encrypted protocols like HTTPS, SSH, and encrypted Email is on the rise. With this increased usage of encrypted communications, firewalls are evolving to serve as proxies for encrypted traffic.

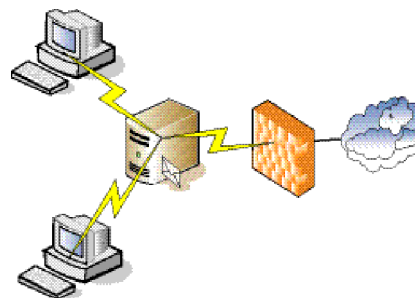
Proxy firewalls can create two separate encrypted tunnels, one from the remote client to firewall, and another from the firewall to internal server. This way, the firewall can still inspect traffic entering and leaving the network.

While any client/server communication can be fed through an encrypted tunnel, the necessity of doing so will depend on local security policy and the environment's security posture. For example, a robust enterprise firewall will shield the internal network from passive disclosure outside of the perimeter. Assuming that all internal users are trusted, there may be no need for additional encryption inside the enclave.

**Will enterprise firewalls serve a purpose in a SOAP architecture?**

Enterprise firewalls are constantly evolving with the introduction of new technologies. SOAP is an emerging XML-based protocol used in the exchange of information between computers that utilize HTTP for network transport. New enterprise firewalls include features to protect both authorized and unauthorized SOAP requests. They are able to look inside the HTTP packet and determine whether or not it is a SOAP transmission. They validate SOAP XML requests and determine whether or not they are malicious based upon established filters. These firewalls can also provide secure SSL tunnels from clients to web application servers.

Enterprise firewalls have evolved and will apply their traditional role to the new SOAP environment. They help to ensure that the hosts sending or receiving SOAP traffic maintain integrity and are available to the user.



Network Enterprise Firewall