Secure Web Gateway for an End-to-End Secure Web Experience

Overview

In recent years, with ever-increasing usage of web and applications in multi-cloud environments, web-based attacks continue to proliferate. In addition, web attacks are becoming more versatile, requiring organizations to protect their employees from advanced malware attacks, including command and control (C2), backdoors, ransomware, and more.

A secure web gateway (SWG) provides a secure web experience to protect users, devices, and applications from both internal and external threats. Using one solution rather than several disparate point products offers a number of benefits, including simplified management and reduced costs, while maintaining high security posture. Fortinet SWG capabilities provide an end-to-end secure web experience with URL filtering, data loss prevention, and advanced malware protection including remote browser isolation to defend users from internet-borne threats, and to help enterprises enforce internet policy compliance. In today’s digital world, up to 70% of web traffic is encrypted, according to estimates. More importantly transport layer security (TLS) is emerging as a preference over earlier versions of secure sockets layer (SSL) protocols. The Fortinet SWG provides deep SSL inspection, including the latest TLS 1.3 protocol, without compromising on performance.

Key Benefits of Fortinet Secure Web Gateway (SWG):

- Secure web access against both internal and external risks, even for encrypted traffic at high performance
- Enhanced user experience with dynamic web and video caching
- Automatically block threats in encrypted traffic (including TLS 1.3) with industry’s highest SSL inspection performance
- Independent third-party validation from NSS Labs demonstrates high security effectiveness with best price performance
- Block and control web access based on user or user groups across URLs and domains
- Prevent data loss and discover user activity to known and unknown cloud applications
- Block DNS requests against malicious domains
- Multilayered advanced protection against zero-day malware threats delivered over the web
- Proactively block sophisticated attacks in real time with AI-powered FortiGuard Labs and advanced threat protection services included in the Fortinet Security Fabric

SSL 1.0
Netscape
- Never went public

SSL 2.0
Netscape
- Lots of security flaws

SSL 3.0
Netscape
- Complete redesign

TLS 1.0
IETF, RFC 2246
- Close to SSL 3.0

TLS 1.1
IETF, RFC 4346
- Improve protection against attacks

TLS 1.2
IETF, RFC 5246
- Improve security
- Support extensions
- Add new cipher suites

TLS 1.3
IETF, RFC 8446
- Improve security
- Drop unsecure features
- Add new cipher suites

SSL 1.0
1995

SSL 2.0
1996

SSL 3.0
1999

TLS 1.0
2000

TLS 1.1
2008

TLS 1.2
2018

N/A
World-class SWG Solution, Trusted by Security Leaders

As a leader in security for many years, Fortinet has built world-class SWG technology to mitigate and prevent threats that use the web as an attack vector. Fortinet’s flagship network security product line is trusted and deployed by many large enterprises as an SWG. FortiProxy is a dedicated SWG appliance for customers with specific requirements around advanced caching capabilities and deep content analysis. FortiProxy also offers user-based licensing for enterprises who price using the flexibility of OpEx budgets.

The Fortinet SWG solution offers deep SSL/TLS inspection with strict SSL checks to ensure the validity of the SSL/TLS certificates, with minimum performance degradation. This is critical for enterprises that struggle to strike a good balance between encrypted traffic inspection and network performance.

In a crowded market, many enterprises rely on third-party independent firms like NSS Labs to ensure they choose the right product to meet their security needs. Below are comparative NSS Labs next-generation firewall (NGFW) test results focused on SSL performance, including FortiGate, which is used by global enterprises for SWG uses.

Fortinet Superior SSL Performance

NSS Labs NGFW 2019—New SSL Performance Test

<table>
<thead>
<tr>
<th>Product</th>
<th>SSL Performance Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGT 500E</td>
<td>6.0 -&gt; 5.8 Gbps</td>
</tr>
<tr>
<td>PA 5220</td>
<td>3.7 -&gt; 1.9 Gbps</td>
</tr>
<tr>
<td>CK 6500</td>
<td>1.5 -&gt; 0.7 Gbps</td>
</tr>
<tr>
<td>FPR 4150</td>
<td>4.8 -&gt; 3.7 Gbps</td>
</tr>
</tbody>
</table>

Content scanning and visibility

Decryption

Re-encryption

HTTPS

HTTPS
The Fortinet SWG offers flexible deployment options:

1. **Explicit Deployment**—Client browsers can be configured to redirect traffic to the FortiProxy (PAC files supported).

   ![Explicit Deployment Diagram]

2. **Transparent Deployment**—Existing network solutions can be configured to redirect traffic using Web Cache Communication Protocol (WCCP).

   ![Transparent Deployment Diagram]

3. **In-line Deployment**—Secure web gateway acts as a transparent bridge in the network and analyzes the content.

   ![In-line Deployment Diagram]

**Summary**

Fortinet Secure Web Gateway offers customers flexibility to deploy the right solution based on use cases specific to environment. Powered by purpose-built security processing units and an efficient software architecture, Fortinet SWG can handle the high bandwidth requirements of modern-day web traffic. As part of the Fortinet Security Fabric, SWG receives real-time threat-intelligence updates to protect against zero-day threats and support the strongest security posture.