

FortiOS: The Foundation of the Fortinet Security Fabric

Executive Summary

Far too many organizations still rely on isolated and bolt-on products deployed across their networks to secure their digital environments. This complexity leads to fragmented visibility and control, creating security gaps that cyber adversaries can exploit to compromise your connected data and resources.

Fortinet is committed to a different approach. Since our founding, we have focused on the seamless convergence of critical networking and security tools. For consistent networkwide protection, especially in today's hybrid environments, organizations require a truly integrated platform where every security and networking element, regardless of where it has been deployed, can function as part of a holistic, integrated system.

FortiOS 8.0: The Operating System of the Fortinet Security Platform

For more than two decades, Fortinet has been developing and delivering the industry's most mature security and networking platform, the Fortinet Security Fabric. By consolidating and converging essential networking and security tools into a single, integrated solution, organizations can address the risks and challenges targeting today's complex IT and OT environments and the expanding AI-powered attack surface.

Unlike vendors who are just now adopting a platform approach to security, we have been diligently building and refining our Security Fabric for years, resulting in the most extensive product coverage available. FortiOS 8.0 is our newest, natively integrated operating system, engineered to bridge the gap between advanced networking and the needs of modern AI-driven security. It features new capabilities and services across the Fortinet Security Fabric. Its latest updates include protection for the AI infrastructure; improved visibility and control of generative AI (GenAI); stronger data protection; expanded quantum-safe capabilities; and advanced generative AI functionality across all three of our pillars: Secure Networking, AI-Driven Security Operations, and Unified SASE. It also adds new data governance and OT capabilities.

The Fortinet Platform Is Built on a Unified Strategy

By unifying its operating system, endpoint agent, centralized management, data platform, post-quantum protection, and built-in AI, the Fortinet Security Fabric eliminates the gaps created by fragmented legacy tools and loosely connected vendor stacks. Designed around a cohesive architecture, it integrates intelligence directly into the framework to deliver advanced threat defense and long-term resilience. This consolidated foundation streamlines interoperability across environments, reduces operational complexity, improves return on investment, and equips IT teams with comprehensive insight, elastic growth, and stronger governance.

- **One OS:** FortiOS is the foundation of every tool and function built into the Security Fabric platform. The power of this unified OS approach is evident in our industry-leading position across numerous Gartner Magic Quadrant categories, including Hybrid Mesh Firewall, LAN Edge, and Secure Access Service Edge (SASE). This integrated approach eliminates the complexity of managing disparate systems and ensures consistent security policies and enforcement across the entire network.
- **One unified agent:** The FortiClient agent provides powerful telemetry, visibility, control, and protection to IT teams by seamlessly integrating endpoint protection platform (EPP) and zero-trust network access (ZTNA) capabilities. FortiClient also includes endpoint detection and response (EDR) for behavior-based detection for your endpoints, providing strong ransomware protection within the most comprehensive . agent on the market. This single agent allows extensive monitoring and defense functions to integrate smoothly with your broader network security architecture and SOC operations.



Because of continued network and security complexity, it now takes an average of 241 days for organizations to identify and contain a data breach—and even then, only one-third of breaches are identified by an organization's internal security teams and tools.¹

With FortiOS 8.0, FortiClient now supports PQC for secure VPN connectivity, endpoint risk score for posture visibility and adaptive ZTNA, and detection and control of AI applications and their communications.

- **One management tool:** Fortinet's single-pane-of-glass management tool provides centralized control across your entire distributed environment, from your campus and data centers to your branch offices and remote users to your multi-cloud environments. FortiManager simplifies the management of on-premises, cloud-based, and cloud-delivered security solutions for comprehensive network visibility and control through a single console. FortiAI-Assist in FortiManager revolutionizes network operations by harnessing the power of GenAI. It simplifies network management, reduces human errors and downtime, and enhances overall operational efficiency.
- **One data lake:** The FortiAnalyzer data lake serves as a central repository for security operations center (SOC) analysis, designed to improve visibility, accelerate investigations, and enable security teams to stay ahead of evolving threats with fewer resources. FortiOS 8.0 features a unified XDR dashboard for instant risk assessment across network, endpoint, and identity domains. It integrates embedded AI agents to automate alert triage and root-cause investigation to reduce analyst workloads while expanding identity-driven detections to neutralize credential-based attacks earlier in the kill chain. This evolution transforms the SOC from a manual monitoring center into a machine-speed response engine.
- **Quantum safe security:** The Fortinet platform is designed to help organizations prepare for the post quantum era through crypto agility and future ready encryption. Fortinet supports Quantum Key Distribution (QKD) and NIST-approved Post Quantum Cryptography (PQC) algorithms, including FIPS 204 and FIPS 205, with full SSL/TLS inspection capabilities. These protections are implemented with minimal impact on performance, enabling customers to adopt quantum resistant security without sacrificing network efficiency.
- **Native AI:** AI is built into FortiOS and embedded directly into the unified operating system, rather than being a bolt-on application or external service. Because AI operates inline, it delivers real-time detection and protection across the entire fabric without adding latency. This native architecture enables Fortinet to stop known and unknown threats, including zero-day and AI-powered attacks, at machine speed. By leveraging AI, FortiOS delivers consistent, AI-driven enforcement and automated responses across all deployment types.



Gartner reports that the average large enterprise now juggles 45 distinct security tools. This sprawl creates a “complexity tax” that hinders visibility and slows response times.²

Key Enhancements to FortiOS 8.0

The Fortinet Security Fabric platform can be deployed across all critical use cases, delivering a broad range of integrated security and network functionality to every corner of your network. The latest updates in FortiOS 8.0 provide new or enriched capabilities, such as:

Enhanced AI-driven threat protection

FortiOS 8.0 advances inline AI- and ML-based protection across the firewall with enhanced MCP and A2A detection, API protection, AI- and ML-powered IPS for DNS, and deeper visibility and control of GenAI applications. These capabilities enable AI-aware security enforcement - real-time detection and prevention of known, unknown, and zero-day threats, as well as AI-powered threats, across the Security Fabric without introducing latency as well enforce safe governed AI use.

Quantum-safe readiness for future-proofing security

Building on a foundation of PQC, QKD, and comprehensive crypto-agility, FortiOS 8.0 enables organizations to reveal threats concealed within encrypted traffic using SSL deep inspection reinforced by FIPS 204/205-compliant hybrid key exchange and post-quantum-safe cryptography. This proactive architecture ensures that attackers can no longer rely on modern encryption or future quantum-enabled techniques to hide malware, command-and-control traffic, or data exfiltration. By protecting critical access paths with quantum-resilient security for management access and agentless VPNs, Fortinet delivers a seamless, high-performance defense that maintains strong end-to-end cryptography. This ensures your infrastructure remains resilient against harvest-now, decrypt-later threats today while being fully prepared for the quantum era of tomorrow.

Streamlined security automation with FortiAI-Assist

FortiOS 8.0 expands FortiAI assistant capabilities to improve operational efficiency and address the skills gap through AI-driven tooltips, guided suggestions, and enhanced debugging and configuration assistance for FortiGate firewalls. FortiAnalyzer also includes several embedded AI agents to help SOC teams. These automation improvements help security teams troubleshoot faster, reduce errors and simplify configuration, and streamline day-to-day firewall operations.

Strengthened data governance and protection

FortiOS 8.0 improves data security through expanded DLP and content inspection capabilities, including OCR with FortiGuard DLP, image classification with URL filtering, and FortiData Label support aligned with Microsoft Information Protection (MIP). These features allow organizations to consistently classify, monitor, and protect sensitive data leak across multiple channels: applications, users, and environments.

Reduced cyber and operational risk across IT and OT

FortiOS 8.0 extends advanced security controls into OT environments with VIP (Virtual IP) support for encrypted communications to OT servers ensuring security and compliance to NERC CIP/IEC 62443 and audit readiness, enhanced IPsec connectivity, and improved segmentation and inspection. By securing both IT and OT infrastructures, FortiOS helps organizations reduce cyber-physical risk while enabling safe IT/OT convergence.

The Fortinet Advantage

Our relentless focus on organic innovation and development of the Fortinet Security Fabric platform, powered by FortiOS, complemented by tactical acquisitions for specific technologies or capabilities, has created the most holistic and integrated cybersecurity and networking solution in the industry.

This unique approach produces better security outcomes, more efficient operations, a better user experience, and a stronger ROI. FortiOS 8.0 builds on previous development with the latest in AI infrastructure protection, AI-powered security, quantum safety, data protection, automation, GenAI, and advanced functionality to further speed and simplify today's increasingly complex NOC and SOC operations.

¹ Cost of a Data Breach Report 2025, IBM, July 2025, <https://www.ibm.com/reports/data-breach>

² Gartner, Inc. (2025, March 3). *Gartner identifies the top cybersecurity trends for 2025* [Press release]. Gartner. <https://www.gartner.com/en/newsroom/press-releases/2025-03-03-gartner-identifiesthe-top-cybersecurity-trends-for-2025>

