

# FortiGate®-VM on Amazon Web Services



**Data Sheet** 



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### Highlights

- Securely connect to your application workloads without performance bottlenecks
- Move at cloud speed without compromising security
- Seamlessly scale your cloud protection without increasing operational burden
- Secure your cloud transformation without impacting business outcomes, with flexible consumption models

## Adaptive Multi-Cloud Security with Al-Powered Advanced Threat Protection

The FortiGate-VM on AWS delivers next-generation firewall capabilities for organizations of all sizes, with the flexibility to be deployed as next-generation firewall or VPN gateway. It protects against cyber threats with high performance, security efficacy, and deep visibility.

FortiGate-VM delivers protection from a broad array of network security threats. It offers the same security and networking services included in the FortiOS operating system and is available for public cloud, private cloud, and Telco Cloud (VNFs). With a consistent operational model across hybrid cloud, multi-cloud, and service provider environments, it reduces the training burden on security teams.



Available in



Appliance



Virtual





Cloud



Container

## **FortiOS Everywhere**

#### FortiOS, Fortinet's Advanced Operating System

FortiOS enables the convergence of high performing networking and security across the Fortinet Security Fabric. Because it can be deployed anywhere, it delivers consistent and context-aware security posture across network, endpoint, and multi-cloud environments.

FortiOS powers all FortiGate deployments whether a physical or virtual device, as a container, or as a cloud service. This universal deployment model enables the consolidation of many technologies and use cases into a simplified, single policy and management framework. Its organically built best-of-breed capabilities, unified operating system, and ultra-scalability allows organizations to protect all edges, simplify operations, and run their business without compromising performance or protection.

FortiOS dramatically expands the Fortinet Security Fabric's ability to deliver advanced AI/ ML-powered services, inline advanced sandbox detection, integrated ZTNA enforcement, and more, provides protection across hybrid deployment models for hardware, software, and Software-as-a-Service with SASE.

FortiOS expands visibility and control, ensures the consistent deployment and enforcement of security policies, and enables centralized management across large-scale networks with the following key attributes:

- Interactive drill-down and topology viewers that display real-time status
- On-click remediation that provides accurate and quick protection against threats and abuses
- Unique threat score system correlates weighted threats with users to prioritize investigations



Intuitive easy to use view into the network and endpoint vulnerabilities



Visibility with FOS Application Signatures

#### **FortiConverter Migration Service**

FortiConverter Service provides hassle-free migration to help organizations transition from a wide range of legacy firewalls to FortiGate Next-Generation Firewalls quickly and easily. The service eliminates errors and redundancy by employing best practices with advanced methodologies and automated processes. Organizations can accelerate their network protection with the latest FortiOS technology.



## **FortiGuard Services**

#### **Network and File Security**

Services provide protection against network-based and file-based threats. This consists of Intrusion Prevention (IPS) which uses AI/M models to perform deep packet/SSL inspection to detect and stop malicious content, and apply virtual patching when a new vulnerability is discovered. It also includes Anti-Malware for defense against known and unknown file-based threats. Anti-malware services span both antivirus and file sandboxing to provide multilayered protection and are enhanced in real-time with threat intelligence from FortiGuard Labs. Application Control enhances security compliance and offers real-time application visibility.

#### Web / DNS Security

Services provide protection against web-based threats including DNS-based threats, malicious URLs (including even in emails), and botnet/command and control communications. DNS filtering provides full visibility into DNS traffic while blocking high-risk domains, and protects against DNS tunneling, DNS infiltration, C2 server ID and Domain Generation Algorithms (DGA). URL filtering leverages a database of 300M+ URLs to identify and block links to malicious sites and payloads. IP Reputation and anti-botnet services prevent botnet communications, and block DDoS attacks from known sources.

#### SaaS and Data Security

Services address numerous security use cases across application usage as well as overall data security. This consists of Data Leak Prevention (DLP) which ensures data visibility, management and protection (including blocking exfiltration) across networks, clouds, and users, while simplifying compliance and privacy implementations. Separately, our Inline Cloud Access Security Broker (CASB) service protects data in motion, at rest, and in the cloud. The service enforces major compliance standards and manages account, user and cloud application usage. Services also include capabilities designed to continually assess your infrastructure, validate that configurations are working effectively and secure, and generate awareness of risks and vulnerabilities that could impact business operations. This includes coverage across IoT devices for both IoT detection and IoT vulnerability correlation.

#### **Zero-Day Threat Prevention**

Zero-day threat prevention entails Fortinet's AI-based inline malware prevention, our most advanced sandbox service, to analyze and block unknown files in real-time, offering subsecond protection against zero-day and sophisticated threats across all NGFWs. The service also has a built-in MITRE ATT&CK® matrix to accelerate investigations. The service focuses on comprehensive defense by blocking unknown threats while streamlining incident response efforts and reducing security overhead.

#### **OT Security**

The service provides OT detection, OT vulnerability correlation, virtual patching, OT signatures, and industry-specific protocol decoders for overall robust defense of OT environments and devices.



## Secure Any Edge at Any Scale

#### Advanced Virtual Security Processing Units (vSPUs)

Virtual firewalls are commonly used to protect virtualized environments in software-defined data centers and multi-cloud environments on the basis that they are the least expensive and the most portable, enabling users to easily move a virtual firewall from cloud to cloud. One disadvantage of most virtual firewalls is that they deliver significantly lower network throughput as compared with physical firewalls, creating bottlenecks throughout the network and reducing business agility and performance.

FortiGate virtual firewalls (FortiGate-VM), featuring advanced virtual security processing units (vSPUs), overcome the throughput barrier to provide top performance in private and public clouds. With FortiGate-VM, organizations can securely migrate any application and support a variety of use cases, including highly available large-scale virtual private networks (VPNs) in the cloud."

FortiGate-VM removes the cost-performance barriers to adopting virtual NGFWs, with several industry-leading features:

- The FortiGate-VM vSPU is a unique technology that enhances performance by offloading part of packet processing to user space, while using a kernel bypass solution within the operating system. With vSPU enabled, FortiGate-VM can achieve more than triple the throughput for a UDP firewall rule.
- Fortinet is the first NGFW vendor to support AWS C5n instances, which enables organizations to use a virtual firewall to secure compute-heavy applications in the cloud.

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Intuitive view and clear insights into network security posture with FortiManager

#### Centralized Network and Security Management at Scale

FortiManager, the centralized management solution from Fortinet, enables integrated management of the Fortinet security fabric, including devices like FortiGate, FortiSwitch, and FortiAP. It simplifies and automates the oversight of network and security functions across diverse environments, serving as the fundamental component for deploying Hybrid Mesh Firewalls.

## Deployment

## Next Generation Firewall (NGFW)

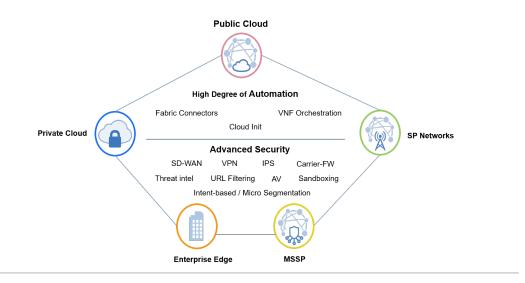
- Reduce complexity by combining threat protection security capabilities into single highperformance network security appliances
- Identify and stop threats with powerful intrusion prevention beyond port and protocol that examines the actual applications in your network traffic
- Deliver the industry's highest SSL inspection performance using industry-mandated ciphers while maximizing ROI
- Proactively block newly discovered sophisticated attacks in real-time with advanced threat protection



#### **VPN Gateway**

- Direct Connect utilizing FortiGate firewalls for SSL and IPsec VPNs into and out of the AWS VPCs
- VGW to FortiGate VPN between VPCs
- Hybrid cloud site to site IPsec VPN
- Remote access VPN

#### Gain Comprehensive Visibility and Apply Consistent Control





#### **AWS Integration**

- Fortinet embeds the latest AWS Auto Scaling functionality and FortiGate CloudFormation template configuration into our cloud Security Fabric, providing automation based on resource demand from your cloud workloads
- Accelerate time-to-protection for new threats detected by AWS GuardDuty by deploying native AWS scripting to automatically push malicious IP or DNS addresses into dynamic FortiGate policies
- Provide service resiliency with AWS native load balance

## **Specifications**

The C6in instance family leverages the Intel IceLake Processors. FortiGate-VM is available for purchase in all regions, including AWS GovCloud and AWS China. The following is the system requirement for BYOL licenses:

	VM-01/ 01V/01S	VM- 02V/	-02/ /02S	VM- 04V/		VM- 08V/		VM- 16V/		VM- 32V/		VM-UL/ ULV/ULS
System Requirement												
vCPU (Minimum / Maximum)	1 / 1	1 /	2	1 /	4	1 /	8	1 /	16	1 /	32	1 / Unlimited
Technical Specifications												
Network Interface Support (Minimum / Maximum) <sup>1</sup>	1/24	1 /	24	1 /	24	1 /	24	1 /	24	1 /	24	1/24
Virtual Domains (Default / Maximum) <sup>2</sup>	10 / 10	10 /	25	10 /	50	10 /	500	10 /	500	10 /	500	10 / 500
Firewall Policies	10 000	10 (	000	10 0	000	200	000	200	000	200	000	200 000
System Performance		ENA Driv	ver - Yes	ENA Driv	ver - Yes	ENA Driv	/er - Yes	ENA Driv	ver - Yes	ENA Driv	/er - Yes	
Instance Shape to be Measured		C6in.L	ARGE	C6in.X	LARGE	C6in.2)	LARGE	C6in.4X	LARGE	C6in.8X	LARGE	
AWS Bandwidth <sup>3</sup>		Up to 2	5 Gbps	Up to 3	0 Gbps	Up to 4	0 Gbps	Up to 5	0 Gbps	50 G	bps	
		Native	IPSEC	Native	IPSEC	Native	IPSEC	Native	IPSEC	Native	IPSEC	
Firewall Throughput (UDP Packets) in Mbps - 1518 bytes*		17 000	2100	30 000	3100	40 000	6100	43 900	9250	45 700	14 000	
Firewall Throughput (UDP Packets) in Mbps - 512 bytes*		5760	1080	9450	1550	15 000	2900	15 650	4500	15 650	6000	
Firewall Throughput (UDP Packets) in Mbps - 64 bytes*		700	180	1180	270	2000	510	2020	700	2020	780	
New Sessions / Second (TCP)		157 000	-	223 000	-	250 000	-	290 000	-	320 000	-	
HTTP Throughput w/ Application profile (64K size) <sup>4</sup> in Mbps		7920	-	14 700	-	28 500	-	29 000	-	29 200	-	
HTTP Throughput w/ IPS profile (44K size) in Mbps		10 500	-	17 300	-	28 400	-	28 600	-	28 700	-	
HTTP Throughput w/ IPS profile (1M size) <sup>s</sup> in Mbps		10 800	-	17 800	-	28 600	-	28 500	-	28 600	-	
NGFW Throughput <sup>6</sup> in Mbps		800	-	1510	-	2960	-	5500	-	10 200	-	
Threat Protection Throughput <sup>7</sup> in Mbps		720	-	1480	-	2920	-	5400	-	10 000	-	
SSL Inspection Throughput in Mbps <sup>8</sup>		1860	-	3480	-	6900	-	14 000	-	26 200	-	

#### Notes.

All performance values are "up to" and vary depending on system configuration. Actual performance may vary depending on the network and system configuration.

Please note that these metrics are updated periodically as the product performance keeps improving through internal testing.

The discrepancy in the performance numbers may be noted in different versions of the document so please make sure to refer to the latest datasheets.

Performance metrics were observed using FortiGate-VM BYOL instances using FOS v7.4.0.

\* IPSEC Performance metrics were observed using FortiGate-VM BYOL instances using FOS v7.4.2.

- 1. Applicable to 6.4.0+. The actual working number of consumable network interfaces varies depending on AWS instance types/sizes and may be less.
- FG-VMxxV and FG-VMxxS series do not come with a multi-VDOM feature by default. You can add it by applying separate VDOM addition perpetual licenses. See ORDER INFORMATION for VDOM SKUs.
- The latest information about AWS bandwidth is found on https://aws.amazon.com/ec2/ instance-types/.
- 4. Application Control performance is measured with 64 Kbyte HTTP traffic.



- 6. NGFW performance is measured with IPS and Application Control enabled, based on Enterprise Traffic Mix.
- 7. Threat Protection performance is measured with IPS and Application Control and Malware protection enabled, based on Enterprise Traffic Mix.
- 8. SSL Inspection Throughput is measured using TLS ECDHE RSA WITH AES 256 GCM SHA384 (2K).

For the sizing guide, please refer to the sizing document available on www.fortinet.com

## **Specifications**

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System Performance		ENA Driv	ver - Yes	ENA Driv	/er - Yes							
Instance Shape to be Measured		C7gn.L	ARGE	C7gn.X	LARGE	C7gn.2)	LARGE	C7gn.4)	KLARGE	C7gn.8)	KLARGE	
AWS Bandwidth <sup>3</sup>		Up to 3	0 Gbps	Up to 4	0 Gbps	Up to 5	0 Gbps	50 G	bps	100 0	Gbps	
		Native	IPSEC									
Firewall Throughput (UDP Packets) in Mbps - 1518 bytes		22 500	1850	32 500	3900	34 000	4550	51 000	10 500	51 800	13 000	
Firewall Throughput (UDP Packets) in Mbps - 512 bytes		7800	1200	14 500	2440	17 200	2850	18 000	5000	18 600	6600	
Firewall Throughput (UDP Packets) in Mbps - 64 bytes		1070	250	2200	480	2250	560	2500	600	2500	1000	
New Sessions / Second (TCP)		194 000	-	285 000	-	300 000	-	380 000	-	425 000	-	
HTTP Throughput w/ Application profile (64K size) <sup>4</sup> in Mbps		11 400	-	20 000	-	25 300	-	29 300	-	29 600	-	
HTTP Throughput w/ IPS profile (44K size) in Mbps		14 500	-	22 000	-	25 100	-	28 950	-	29 200	-	
HTTP Throughput w/ IPS profile (1M size) <sup>5</sup> in Mbps		14 500	-	22 000	-	25 100	-	29 000	-	29 200	-	
NGFW Throughput in Mbps <sup>6</sup>		850	-	1600	-	3100	-	5800	-	10 600	-	
Threat Protection Throughput in Mbps <sup>7</sup>		850	-	1600	-	3090	-	5700	-	10 300	-	
SSL Inspection Throughput in Mbps <sup>8</sup>		2650	-	4900	-	9350	-	17 900	-	25 350	-	

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- 4. Application Control performance is measured with 64 Kbyte HTTP traffic.

- 5. IPS performance is measured using Enterprise Traffic Mix and 1 Mbyte HTTP.
- 6. NGFW performance is measured with IPS and Application Control enabled, based on Enterprise Traffic Mix.
- 7. Threat Protection performance is measured with IPS and Application Control and Malware protection enabled, based on Enterprise Traffic Mix.
- SSL Inspection Throughput is measured using TLS ECDHE RSA WITH AES 256 GCM SHA384 (2K).



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## Licensing

With a multitude of deployment methods supported across various private and public cloud deployments, FortiGate-VM for AWS supports both on-demand (PAYG) and bring-your-own-license (BYOL) licensing models.

On-demand licensing is a highly flexible option for both initial deployments and growing them as needed. With a wide selection of supported instance types, there is a solution for every use case. This license offers FortiOS with a UTP bundle.

BYOL is ideal for migration use cases, where an existing private cloud deployment is migrated to a public cloud deployment. When using an existing license, the only additional cost would be the price for the AWS instances.

## **Ordering Information**

The following are SKUs that can be acquired for BYOL scheme. For PAYG/On-Demand subscription, various instance/VM types are available on Marketplace. BYOL is perpetual licensing, as opposed to PAYG/On-Demand, which is an hourly subscription available with marketplace-listed products.

Product	SKU	Description
FortiGate-VM01	FG-VM01, FG-VM01V	FortiGate-VM 'virtual appliance'. 1x vCPU core. No VDOM by default for FG-VM01V model.
FortiGate-VM02	FG-VM02, FG-VM02V	FortiGate-VM 'virtual appliance'. 2x vCPU cores. No VDOM by default for FG-VM02V model.
FortiGate-VM04	FG-VM04, FG-VM04V	FortiGate-VM 'virtual appliance'. 4x vCPU cores. No VDOM by default for FG-VM04V model.
FortiGate-VM08	FG-VM08, FG-VM08V	FortiGate-VM 'virtual appliance'. 8x vCPU cores. No VDOM by default for FG-VM08V model.
FortiGate-VM16	FG-VM16, FG-VM16V	FortiGate-VM 'virtual appliance'. 16x vCPU cores. No VDOM by default for FG-VM016V model.
FortiGate-VM32	FG-VM32, FG-VM32V	FortiGate-VM 'virtual appliance'. 32x vCPU cores. No VDOM by default for FG-VM032V model.
FortiGate-VMUL	FG-VMUL, FG-VMULV	FortiGate-VM 'virtual appliance'. Unlimited vCPU cores. No VDOM by default for FG-VMULV model.
Optional Accessories/Spares	SKU	Description
Virtual Domain License Add 5	FG-VDOM-5-UG	Upgrade license for adding 5 VDOMs to FortiOS 5.4 and later, limited by platform maximum VDOM capacity.
Virtual Domain License Add 15	FG-VDOM-15-UG	Upgrade license for adding 15 VDOMs to FortiOS 5.4 and later, limited by platform maximum VDOM capacity.
Virtual Domain License Add 25	FG-VDOM-25-UG	Upgrade license for adding 25 VDOMs to FortiOS 5.4 and later, limited by platform maximum VDOM capacity.
Virtual Domain License Add 50	FG-VDOM-50-UG	Upgrade license for adding 50 VDOMs to FortiOS 5.4 and later, limited by platform maximum VDOM capacity.
Virtual Domain License Add 240	FG-VDOM-240-UG	Upgrade license for adding 240 VDOMs to FortiOS 5.4 and later, limited by platform maximum VDOM capacity.

FG-VMxx"V" 6.0.0 supports VDOM by adding separate VDOM licenses. The number of configurable VDOMs can be stacked up to the maximum number of supported VDOMs per vCPU model. Please refer to Virtual Domains (Maximum) under SPECIFICATIONS.

#### The following SKUs adopt the annual subscription licensing scheme:

Product	SKU	Description
FortiGate-VM01-S	FC1-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (1 vCPU core)
FortiGate-VM02-S	FC2-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (2 vCPU cores)
FortiGate-VM04-S	FC3-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (4 vCPU cores)
FortiGate-VM08-S	FC4-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (8 vCPU cores)
FortiGate-VM16-S	FC5-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (16 vCPU cores)
FortiGate-VM32-S	FC6-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (32 vCPU cores)
FortiGate-VMUL-S	FC7-10-FGVVS- <support bundle="">-02-DD</support>	Subscriptions license for FortiGate-VM (Unlimited vCPU cores)

FortiOS 6.2.3+ and 6.4.0+ support the FortiGate-VM S-series. The FortiGate-VM S-series does not have RAM restrictions on all vCPU levels. FortiManager 6.2.3+ and 6.4.0+ support managing FortiGate-VM S-series devices.

## **Subscriptions**

				Bundles			
Service Category	Service Offering	A-la-carte	Enterprise Protection	Unified Threat Protection	Advanced Threat Protection		
FortiGuard Security	IPS — IPS, Malicious/Botnet URLs	•	•	•	•		
Services	Anti-Malware Protection (AMP)—AV, Botnet Domains, Mobile Malware, Virus Outbreak Protection, Content Disarm and Reconstruct, Al-based Heurestic AV, FortiGate Cloud Sandbox	•	•	•	•		
	URL, DNS and Video Filtering — URL, DNS and Video Filtering, Malicious Certificate	•	•	•			
	Anti-Spam		•	•			
	Al-based Inline Malware Prevention	•	•				
	Data Loss Prevention (DLP) 1	•	•				
	Attack Surface Security — IoT Device Detection, IoT Vulnerability Correlation and Virtual Patching, Security Rating, Outbreak Check	•	•				
	OT Security—OT Device Detection, OT vulnerability correlation and Virtual Patching, OT Application Control and IPS <sup>1</sup>	•					
	Application Control		included with FortiCare Subscription				
	Inline CASB		included with For	tiCare Subscription			
SD-WAN and SASE Services	SD-WAN Underlay Bandwidth and Quality Monitoring	•					
Services	SD-WAN Overlay-as-a-Service	•					
	SD-WAN Connector for FortiSASE Secure Private Access	•					
	SASE connector for FortiSASE Secure Edge Management (with 10Mbps Bandwidth) <sup>2</sup>	•					
NOC and SOC Services	FortiConverter Service for one time configuration conversion	•	•				
001110003	Managed FortiGate Service—available 24×7, with Fortinet NOC experts performing device setup, network, and policy change management	•					
	FortiGate Cloud—Management, Analysis, and One Year Log Retention	•					
	FortiManager Cloud	•					
	FortiAnalyzer Cloud	•					
	FortiGuard SOCaaS—24×7 cloud-based managed log monitoring, incident triage, and SOC escalation service	•					
Hardware and	FortiCare Essentials <sup>2</sup>	•					
Software Support	FortiCare Premium	•	•	•	•		
	FortiCare Elite	•					
Base Services	Device/OS Detection, GeoIPs, Trusted CA Certificates, Internet Services and Botnet IPs, DDNS (v4/v6), Local Protection, PSIRT Check, Anti-Phishing		included with For	tiCare Subscription			

1. Full features available when running FortiOS 7.4.1.

2. Desktop Models only.



#### FortiGuard Bundles

FortiGuard Labs delivers a number of security intelligence services to augment the FortiGate firewall platform. You can easily optimize the protection capabilities of your FortiGate with one of these FortiGuard Bundles.

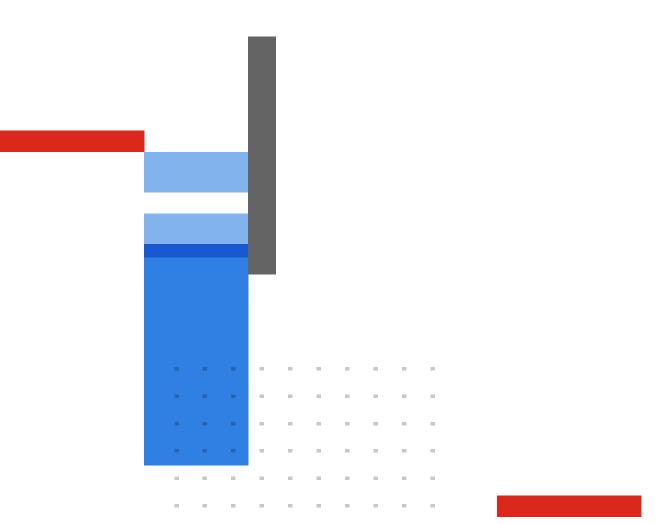


#### **FortiCare Services**

Fortinet prioritizes customer success through FortiCare Services, optimizing the Fortinet Security Fabric solution. Our comprehensive lifecycle services include Design, Deploy, Operate, Optimize, and Evolve. The FortiCare Elite, one of the service variants, offers heightened SLAs and swift issue resolution with a dedicated support team. This advanced support option includes an Extended End-of-Engineering-Support of 18 months, providing flexibility. Access the intuitive FortiCare Elite Portal for a unified view of device and security health, streamlining operational efficiency and maximizing Fortinet deployment performance.

#### Fortinet Corporate Social Responsibility Policy

Fortinet is committed to driving progress and sustainability for all through cybersecurity, with respect for human rights and ethical business practices, making possible a digital world you can always trust. You represent and warrant to Fortinet that you will not use Fortinet's products and services to engage in, or support in any way, violations or abuses of human rights, including those involving illegal censorship, surveillance, detention, or excessive use of force. Users of Fortinet products are required to comply with the Fortinet EULA and report any suspected violations of the EULA via the procedures outlined in the Fortinet Whistleblower Policy.



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