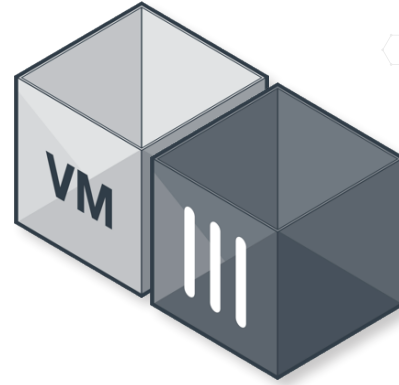


# FortiGate® Virtual Appliances

Consolidated Security for Virtual Environments

Via a complete end-to-end security ecosystem for the Data Center, Fortinet enables and facilitates the enterprise's journey through the Data Center consolidation process.



Fortinet delivers both physical and virtualized security appliances to secure unique data planes. It offers on one side, unmatched performance and security capabilities while allowing for the growth and evolution of the consolidating Data Center with no service degradation or bottlenecks, no compromise on security, and with an unmatched ROI — fulfilling the outcomes of a robust software-defined security framework.

FortiGate Virtual Appliances allow you to mitigate blind spots by implementing critical security controls within your virtual infrastructure. They also allow you to rapidly provision security infrastructure whenever and wherever it is needed. FortiGate virtual appliances feature all of the security and networking services common to traditional hardware-based FortiGate appliances. With the addition of virtual appliances from Fortinet, you can deploy a mix of hardware and virtual appliances, operating together and managed from a common centralized management platform.



## FortiGate Virtual Appliance Benefits

FortiGate virtual appliances offer protection from a broad array of threats, with support for all of the security and networking services offered by the FortiOS operating system. In addition, the appliances offer:

- Increased visibility within virtualized infrastructure
- Rapid deployment capability
- Ability to manage virtual appliances and physical appliances from a single pane of glass management platform
- Simple licensing with no per-user fees
- Support for multiple virtualization and Cloud platforms



Fortinet's comprehensive security virtual appliance lineup supports in excess of 16 solutions.

# PLATFORM

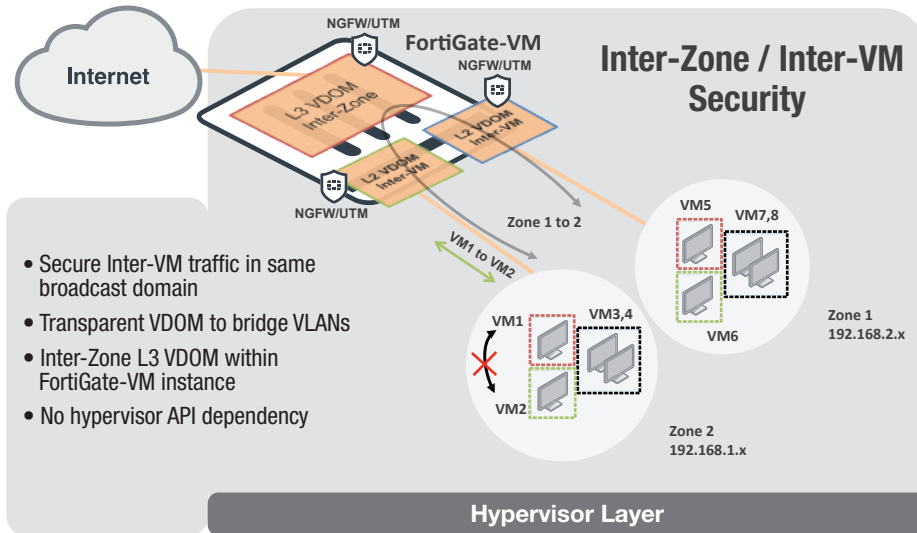
## Choice of Form Factor

Few organizations use 100% hardware or 100% virtual IT infrastructure today, creating a need for both hardware appliances and virtual appliances in your security strategy. Fortinet allows you to build the security solution that's right for your environment with hardware and virtual appliances to secure the core, the edge and increase visibility and control over communications within the virtualized infrastructure. FortiManager virtual or physical appliances allow you to easily manage and update your Fortinet security assets — hardware, virtual or both — from a single pane of glass.

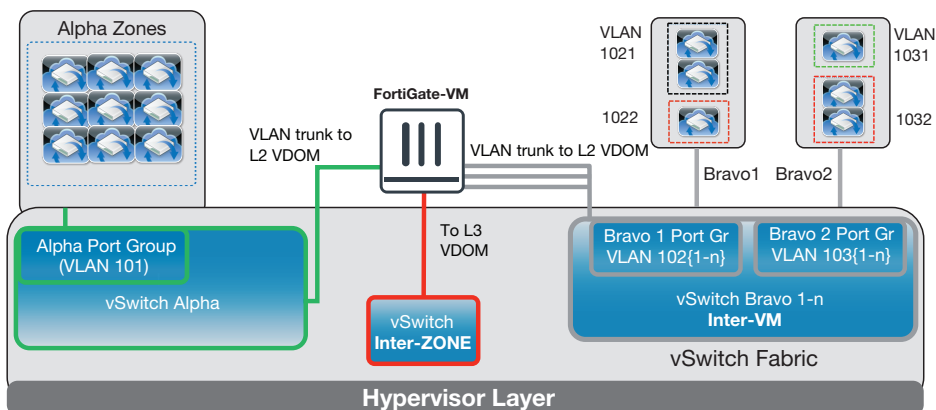
## Multi-Threat Security

Using the advanced FortiOS™ operating system, FortiGate appliances effectively neutralize a wide range of security threats facing your virtualized environment. Whether deployed at the edge as a front-line defense, or deep within the virtual infrastructure for inter-zone security, FortiGate appliances protect your infrastructure with some of the most effective security available today by enabling security features you need.

# DEPLOYMENT



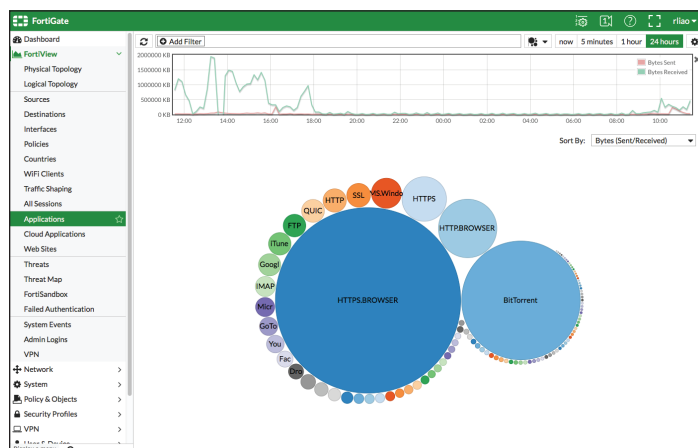
All Inter-VM traffic in Bravo Zones are subject to full UTM scan through L2 VDOM. Inter-Zone traffic subject to full Next Gen Firewall and UTM scan by L3 VDOM. Alpha Zone VMs can all talk to each other freely.



## SOFTWARE

### FortiOS

Control all the security and networking capabilities across the entire FortiGate platform with one intuitive operating system. Reduce operating expenses and save time with a truly consolidated next generation security platform.



- A truly consolidated platform with one OS for all security and networking services for all FortiGate platforms.
- Industry-leading protection: NSS Labs Recommended, VB100, AV Comparatives and ICSA validated security and performance.
- Control thousands of applications, block the latest exploits, and filter web traffic based on millions of real-time URL ratings.
- Detect, contain and block advanced attacks automatically in minutes with integrated advanced threat protection framework.
- Solve your networking needs with extensive routing, switching, WiFi, LAN and WAN capabilities.
- Activate all the SPU-boosted capabilities you need on the fastest firewall platform available.



For more information, please refer to the FortiOS data sheet available at [www.fortinet.com](http://www.fortinet.com)

## SERVICES

### FortiGuard™ Security Services

FortiGuard Labs offers real-time intelligence on the threat landscape, delivering comprehensive security updates across the full range of Fortinet's solutions. Comprised of security threat researchers, engineers, and forensic specialists, the team collaborates with the world's leading threat monitoring organizations, other network and security vendors, as well as law enforcement agencies:

- **Real-time Updates** — 24x7x365 Global Operations research security intelligence, distributed via Fortinet Distributed Network to all Fortinet platforms.
- **Security Research** — FortiGuard Labs have discovered over 170 unique zero-day vulnerabilities to date, totaling millions of automated signature updates monthly.
- **Validated Security Intelligence** — Based on FortiGuard intelligence, Fortinet's network security platform is tested and validated by the world's leading third-party testing labs and customers globally.

### FortiCare™ Support Services

Our FortiCare customer support team provides global technical support for all Fortinet products. With support staff in the Americas, Europe, Middle East and Asia, FortiCare offers services to meet the needs of enterprises of all sizes:

- **Enhanced Support** — For customers who need support during local business hours only.
- **Comprehensive Support** — For customers who need around-the-clock mission critical support, including advanced exchange hardware replacement.
- **Advanced Services** — For global or regional customers who need an assigned Technical Account Manager, enhanced service level agreements, extended software support, priority escalation, on-site visits and more.
- **Professional Services** — For customers with more complex security implementations that require architecture and design services, implementation and deployment services, operational services and more.



#### Enterprise Bundle

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 the FortiGuard Enterprise Bundle. This bundle contains the full set of FortiGuard security services plus FortiCare service and support offering the most flexibility and broadest range of protection all in one package.

# SPECIFICATIONS

VENDOR	HYPERVISOR	FORTIGATE-VM			
<b>Private Cloud Platforms</b>					
VMware	ESX v4.0, v4.1 ESXi v5.0, v5.1, v5.5, v6.0	FG-VM00	FG-VM01 FG-VM01v	FG-VM02 FG-VM02v	FG-VM04 FG-VM04v
Citrix	XenServer v5.6 sp2, v6.0 and later	FG-VM00-Xen	FG-VM01-Xen FG-VM01v-Xen	FG-VM02-Xen FG-VM02v-Xen	FG-VM04-Xen FG-VM04v-Xen
Microsoft	Hyper-V Server 2008 R2, 2012, 2012 R2	FG-VM00-HV	FG-VM01-HV FG-VM01v-HV	FG-VM02-HV FG-VM02v-HV	FG-VM04-HV FG-VM04v-HV
KVM	CentOS 6.4 (qemu 0.12.1) and later	FG-VM00-KVM	FG-VM01-KVM FG-VM01v-KVM	FG-VM02-KVM FG-VM02v-KVM	FG-VM04-KVM FG-VM04v-KVM
Open Source Xen	v3.4.3, v4.1 and later	FG-VM00-Xen	FG-VM01-Xen FG-VM01v-Xen	FG-VM02-Xen FG-VM02v-Xen	FG-VM04-Xen FG-VM04v-Xen
<b>Public Cloud Platform</b>					
Amazon	Amazon Web Services (AWS)*	—	FG-VM01-AWS FG-VM01v-AWS	FG-VM02-AWS FG-VM02v-AWS	FG-VM04-AWS FG-VM04v-AWS
Microsoft	Azure*	—	—	FG-VM02-AZ	FG-VM04-AZ
VENDOR	HYPERVISOR	FORTIGATE-VM			
<b>Private Cloud Platforms</b>					
VMware	ESX v4.0, v4.1 ESXi v5.0, v5.1, v5.5, v6.0	FG-VM08	FG-VM16	FG-VM32	FG-VMUL
Citrix	XenServer v5.6 sp2, v6.0 and later	FG-VM08-Xen	—	—	—
Microsoft	Hyper-V Server 2008 R2, 2012, 2012 R2	FG-VM08-HV	FG-VM16-HV	FG-VM32-HV	FG-VMUL-HV
KVM	CentOS 6.4 (qemu 0.12.1) and later	FG-VM08-KVM	FG-VM16-KVM	FG-VM32-KVM	FG-VMUL-KVM
Open Source Xen	v3.4.3, v4.1 and later	FG-VM08-Xen	FG-VM16-Xen	FG-VM32-Xen	FG-VMUL-Xen
<b>Public Cloud Platforms</b>					
Amazon	Amazon Web Services (AWS)*	FG-VM08-AWS	FG-VM16-AWS	FG-VM32-AWS	FG-VMUL-AWS
Microsoft	Azure	FG-VM08-AZ	—	—	—

Hypervisor Support varies according to FortiOS builds. Please refer to appropriate release notes.

\* Available as Pay-As-You-Go or Bring-Your-Own-License (BYOL).

	FORTIGATE-VM00	FORTIGATE-VM01/VM01V	FORTIGATE-VM02/VM02V	FORTIGATE-VM04/VM04V
<b>Technical Specifications</b>				
vCPU Support (Minimum / Maximum)	1 / 1	1 / 1	1 / 2	1 / 4
Network Interface Support (Minimum / Maximum)	2 / 10	2 / 10	2 / 10	2 / 10
Memory Support (Minimum / Maximum)	1 GB / 1.5 GB	1 GB / 2 GB	1 GB / 4 GB	1 GB / 6 GB
Storage Support (Minimum / Maximum)	32 GB+ / 2 TB	32 GB+ / 2 TB	32 GB+ / 2 TB	32 GB+ / 2 TB
Wireless Access Points Controlled (Tunnel / Global)	32 / 32	32 / 64	256 / 512	256 / 512
Virtual Domains (Default / Maximum)	1	10 / 10 (none for VM01v)	10 / 25 (none for VM02v)	10 / 50 (none for VM04v)
Firewall Policies (VDOM / System)	5,000	20,000 / 40,000	50,000 / 100,000	50,000 / 100,000
Unlimited User License	Yes	Yes	Yes	Yes
	FORTIGATE-VM08	FORTIGATE-VM16	FORTIGATE-VM32	FORTIGATE-VMUL
<b>Technical Specifications</b>				
vCPU Support (Minimum / Maximum)	1 / 8	1 / 16	1 / 32	1 / Unlimited
Network Interface Support (Minimum / Maximum)	2 / 10	2 / 10	2 / 10	2 / 10
Memory Support (Minimum / Maximum)	1 GB / 12 GB	1 GB / 24 GB	1 GB / 48 GB	1 GB / Unlimited
Storage Support (Minimum / Maximum)	32 GB+ / 2 TB	32 GB+ / 2 TB	32 GB+ / 2 TB	32 GB+ / 2 TB
Wireless Access Points Controlled (Tunnel / Global)	1,024 / 4,096	1,024 / 4,096	1,024 / 4,096	1,024 / 4,096
Virtual Domains (Default / Maximum)	10 / 250	10 / 500	10 / 500	10 / 500
Firewall Policies (VDOM / System)	50,000 / 100,000	50,000 / 100,000	50,000 / 100,000	50,000 / 100,000
Unlimited User License	Yes	Yes	Yes	Yes

## PERFORMANCE REFERENCE

	VMWARE	MICROSOFT HYPER-V	XEN	KVM
<b>Maximum System Performance</b>				
Firewall Throughput (UDP Packets)	5.3 Gbps	3.4 Gbps	4.0 Gbps	13.0 Gbps
Concurrent Sessions (TCP) <sup>1</sup>	19.0 Million	19.0 Million	19.0 Million	19.0 Million
New Sessions/Second (TCP)	90,000	120,000	50,000	150,000
IPsec VPN Throughput (AES256+SHA1, 512 Byte)	1.5 Gbps	1.1 Gbps	550 Mbps	1.5 Gbps
Gateway-to-Gateway IPsec VPN Tunnels (VDM / System)	5,000 / 10,000	5,000 / 10,000	5,000 / 10,000	5,000 / 10,000
Client-to-Gateway IPsec VPN Tunnels	64,000	64,000	64,000	64,000
SSL-VPN Throughput	2.8 Gbps	2.6 Gbps	1.8 Gbps	5.0 Gbps
Concurrent SSL-VPN Users	25,000	25,000	25,000	25,000
IPS Throughput (HTTP / Enterprise Mix) <sup>2</sup>	5.0 Gbps / 3.7 Gbps	2.5 Gbps / TBD	2.8 Gbps / 775 Mbps	13.0 Gbps / 6.0 Gbps
Application Control Throughput <sup>3</sup>	3.0 Gbps	2.0 Gbps	2.0 Gbps	8.0 Gbps
NGFW Throughput <sup>4</sup>	3.5 Gbps	2.3 Gbps	2.0 Gbps	7.0 Gbps
Threat Protection Throughput <sup>5</sup>	3.0 Gbps	2.0 Gbps	1.0 Gbps	6.0 Gbps
CAPWAP Throughput <sup>6</sup>	3.5 Gbps	3.2 Gbps	1.4 Gbps	3.5 Gbps

Actual performance may vary depending on the network and system configuration. Performance metrics were observed using a Del R730 Server (Intel E5-2687W 3.1 GHz, 2x 10 GE interfaces) running FOS v5.4.1 and latest virtualization platform versions. 1. 24 GB RAM assigned to instance; results will be higher with more RAM added. 2. IPS performance is measured using 1 Mbyte HTTP and Enterprise Traffic Mix. 3. Application Control performance is measured with 64 Kbytes HTTP traffic. 4. NGFW performance is measured with IPS and Application Control enabled, based on Enterprise Traffic Mix. 5. Threat Protection performance is measured with IPS and Application Control and Malware protection enabled, based on Enterprise Traffic Mix. 6. CAPWAP performance is based on 1444 byte UDP packets.

## ORDER INFORMATION

Product	SKU	Description
FortiGate-VM00	FG-VM00(-Xen/HV/KVM)	FortiGate-VM 'virtual appliance' designed for [Platform]. 1x vCPU core, (up to) 1.5 GB RAM and Extreme DB NOT supported.
FortiGate-VM01	FG-VM01(-Xen/HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. 1x vCPU core and (up to) 2 GB RAM.
FortiGate-VM01v	FG-VM01v(-Xen/HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. 1x vCPU core and (up to) 2 GB RAM. No VDOM support.
FortiGate-VM02	FG-VM02(-Xen/HV/KVM/AWS/AZ)	FortiGate-VM 'virtual appliance' designed for [Platform]. 2x vCPU cores and (up to) 4 GB RAM.
FortiGate-VM02v	FG-VM02v(-Xen/HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. 2x vCPU cores and (up to) 4 GB RAM. No VDOM support.
FortiGate-VM04	FG-VM04(-Xen/HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. 4x vCPU cores and (up to) 6 GB RAM.
FortiGate-VM04v	FG-VM04v(-Xen/HV/KVM/AWS/AZ)	FortiGate-VM 'virtual appliance' designed for [Platform]. 4x vCPU cores and (up to) 6 GB RAM. No VDOM support.
FortiGate-VM08	FG-VM08(-Xen/HV/KVM/AWS/AZ)	FortiGate-VM 'virtual appliance' designed for [Platform]. 8x vCPU cores and (up to) 12 GB RAM.
FortiGate-VM16	FG-VM16(-HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. 16x vCPU cores and (up to) 24 GB RAM.
FortiGate-VM32	FG-VM32(-HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. 32x vCPU cores and (up to) 48 GB RAM.
FortiGate-VMUL	FG-VMUL(-HV/KVM/AWS)	FortiGate-VM 'virtual appliance' designed for [Platform]. Unlimited vCPU cores and unlimited RAM.
<b>Optional Accessories</b>		
Virtual Domain License 11-25	FG-VDOM-25	Single Blade VDOM License Key 11–25 Virtual Domain Upgrade.
Virtual Domain License 26-50	FG-VDOM-50	Single Blade VDOM License Key 26–50 Virtual Domain Upgrade.
Virtual Domain License 51-100	FG-VDOM-100	Single Blade VDOM License Key 51–100 Virtual Domain Upgrade.
Virtual Domain License 101-250	FG-VDOM-250	Single Blade VDOM License Key 101–250 Virtual Domain Upgrade.
Virtual Domain License 251-500	FG-VDOM-500	Single Blade VDOM License Key 251–500 Virtual Domain Upgrade.
Virtual Domain License 11-250	FG-VDOM	Single Blade VDOM License Key 11–250 Virtual Domain Upgrade.



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