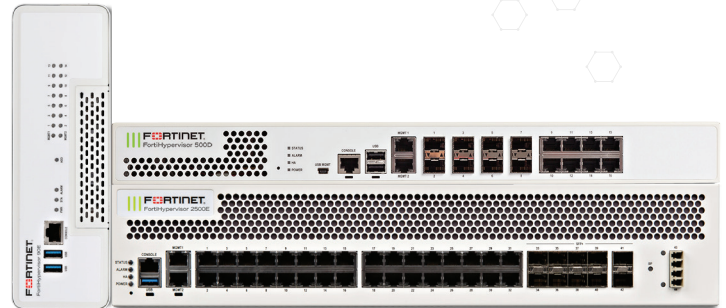# FortiHypervisor

FortiHypervisor 90E, 500D and 2500E

Enterprises need the flexibility to customize services according to their unique business needs and deploy new services quickly while keeping costs under control. Today's traditional branch infrastructures with multiple dedicated CPE hardware make it challenging and costly to deploy custom services fast or bring a new branch online. **Our hybrid virtual appliance simplifies and accelerates deployment of customized services on demand, with support for both universal CPE and cloud-based hosting models.**

FortiHypervisor Growing Eco-System

Supports the widest Fortinet and third-party VNF and VM eco-system to enable rapid service delivery at reduce capex for enterprises. Several SD-WAN and Orchestration security fabric partners are validated.

Purpose-built Hybrid Virtual Appliances

Powerful Intel processer combined with SPU hardware acceleration delivers the high security performance. Ample storage and memory produce excellent compute and network performance.

Highlights

- Cost-effective delivery of on-demand customer services
- SD-WAN and Extended Effective Security functions on a single CPE
- High Performance via Security Processor acceleration
- Ample storage and memory for scalable compute and networking

HIGHLIGHTS

Today, the ability to quickly deploy new branch services is hampered by the complexity and costs involved in bringing a new branch office or service online. Managed service providers (MSPs) find it challenging to maintain and upgrade multiple on-premises equipment for their enterprise customers. The operational complexity of managing multiple on-premises equipment can cause significant delays in time to deploy and market new services, reducing profitability.

Enterprises need the flexibility to adapt their branch offices to their changing business needs in a secure and fast manner. They need the ability to turn up new services on demand from a single platform without the cost and complexity of deploying and managing additional devices, expertise which most branch personnel do not have.

Network Function Virtualization (NFV) enables MSPs to deploy network services as virtualized functions that are decoupled from hardware and chained together, eliminating the need for multiple dedica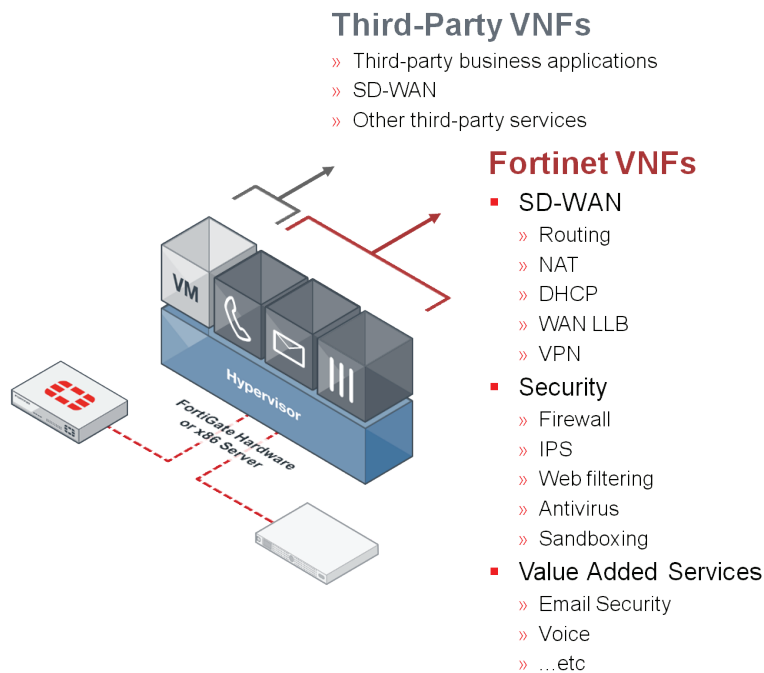ted CPE. NFV centralizes and automates key operational processes such as service creation and provisioning, accelerating service delivery. NFV also opens the door to upsell additional services to create differentiation. Cloud-based service orchestration via NFV platforms reduces on-site provisioning, lowers costs and accelerates service delivery.

Hardware Accelerated Hybrid Virtual Appliance

FortiHypervisor is making the promise of rapid service delivery a reality for enterprises and MSPs. Built to deliver virtualized services as virtual network functions (VNFs), FortiHypervisor consolidates advanced networking and security services on a single device, eliminating the need for multiple CPE while enabling on-demand service delivery.

A powerful Intel processor combined with SPU hardware acceleration delivers the high security performance that customers have come to expect from Fortinet. Ample storage and memory produce excellent compute, network and security performance.

FEATURES

Third-Party VNFs
» Third-party business applications
» SD-WAN
» Other third-party services

Fortinet VNFs
- SD-WAN
  » Routing
  » NAT
  » DHCP
  » WAN LLB
  » VPN
- Security
  » Firewall
  » IPS
  » Web filtering
  » Antivirus
  » Sandboxing
- Value Added Services
  » Email Security
 » Voice
  » …etc

NFV Architecture Benefits
- Software is decoupled from hardware
- Multiple services can be deployed on the same hardware
- Services are deployed as VNFs that are chained together
- Service creation and provisioning are centralized and automated
- New services can be added quickly
- Capex and Opex are reduced

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DEPLOYMENT

FortiHypervisor is available as a hybrid CPE running on FortiGate hardware, and a virtual CPE software instance that can be deployed on any generic x86 platform. FortiHypervisor supports the following on-premises and cloud-hosted use cases.

MSP Hosted CPE (cloud)

- MSP cloud-hosted CPE deployment model
- Centralized service orchestration and provisioning by MSP via third-party SDN/NFV
- Can run Fortinet and third-party VNFs
- FortiGate VM available as VNF
- Multi-tenancy (customer separation) for economical hosting
- FortiGate hardware with SPU acceleration and low latency

Enterprise Branch Customer
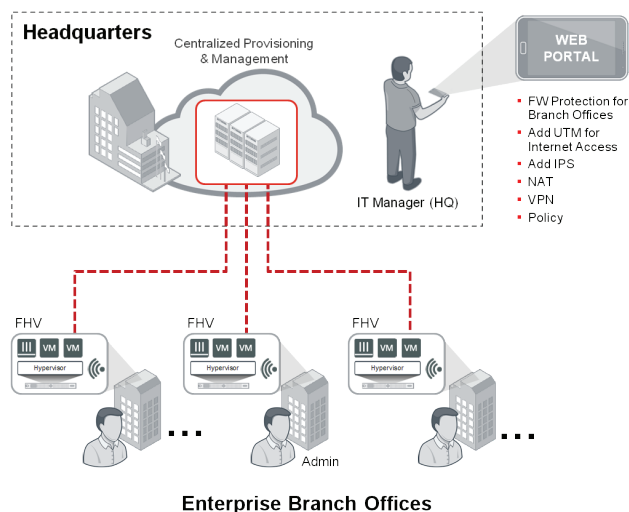

Enterprise Branch Customer
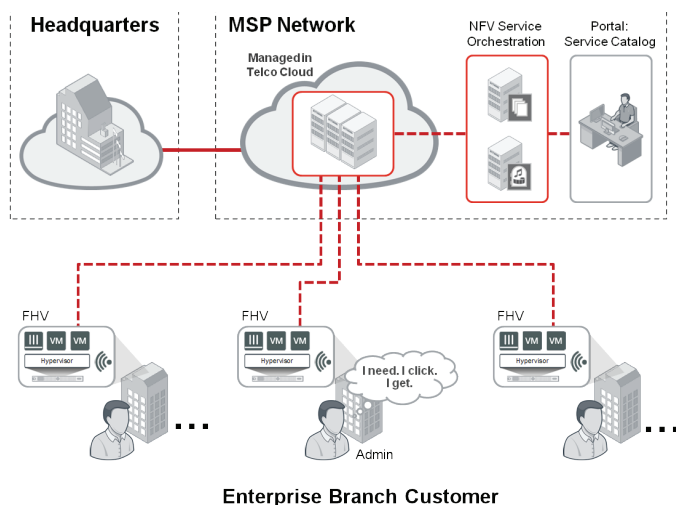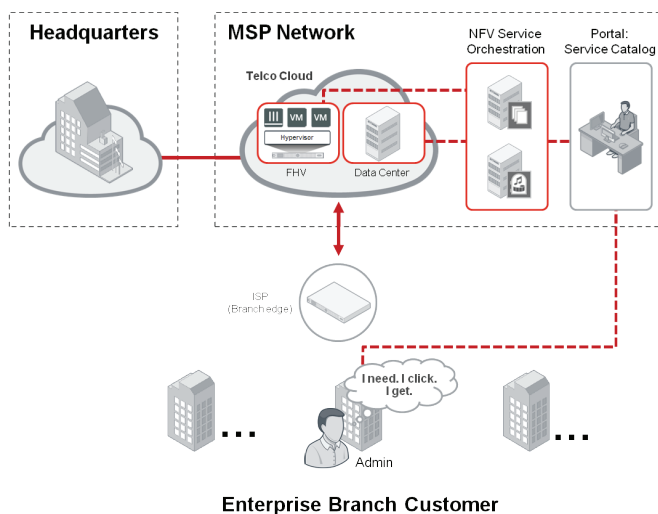
On-premises MSP CPE

- On-premises universal CPE deployment model
- Centralized service orchestration and provisioning by MSP via third-party SDN/NFV
- Can run Fortinet and third-party VNFs
- FortiGate VM available as VNF
- FortiGate hardware with optional SPU acceleration
- FortiExtender 3G/4G backup
- SD-WAN service

Enterprise "branch in a box"

- Very large enterprise, distributed retail solution
- Single CPE can run multiple Fortinet and third-party services
- FortiGate VM available as VNF
- FortiGate hardware with optional SPU acceleration
- Centralized service provisioning and management
- FortiExtender 3G/4G network backup
- SD-WAN service

Enterprise Branch Offices

SPECIFICATIONS

	FORTIHYPERVISOR 90E	FORTIHYPERVISOR 500D	FORTIHYPERVISOR 2500E
System Specifications			
Maximum VMs Supported	6	12	28
Compatibale VNFs/VMs*	FortiManager KVM, FortiAnalyzer KVM, FortiGate KVM, FortiSandbox, FortiWeb KVM, FortiADC KVM, FortiRecorder KVM, FortiMail KVM, FortiVoiceEnterprise KVM, FortiCache 4.1.1 the cloud, Windows Server 2012 R2, Windows 10 Pro, Windows 7 Pro, CentOS 7, Ubuntu, Tiny Core Linux		
10/100/1000 Interfaces (Copper, RJ45)	14	10	32
SFP Interfaces	0	8	0
SFP+ Interfaces	0	0	10
Management/HA Interfaces (RJ45)	2	2	2
Included Trancievers	0	2x SFP (SX 1 GE)	2 SFP+ (SX 10 GE)
Internal Storage	1x 1 TB Hard Disk Drive	2x 2 TB Hard Disk Drive	2x 3 TB Hard Disk Drive
CPU Specification	2 cores, 2 threads, 1.7 GHz	4 cores, 4 threads, 3.2 GHz	6 cores, 12 threads, 3.5 GHz
Memory Size	8 GB	16 GB	32 GB
Dimensions			
Height x Width x Length (inches)	2.9 x 8.5 x 7.0	1.73 x 17.00 x 12.68	3.5 x 17.4 x 21.9
Height x Width x Length (mm)	73 x 216 x 179	44 x 432 x 322	88 x 442 x 555
Weight	4.7 lbs (2.1 kg)	10.8 lbs (4.9 kg)	36.5 lbs (16.6 kg)
Environment			
Form Factor	Desktop	1RU, Rack Mount	2RU, Rack Mount, Ears supplied, Rail optional
Power Source	100–240V AC, 60–50 Hz (External DC Power Adapter)	100–240V AC, 50–60 Hz	100–240V AC, 50–60 Hz
Current (Max)	3A /110V, 1.5A / 220V	4A /110V, 2A / 220V	9A /110V, 4.5A / 220V
Power Consumption (Average / Maximum)	30 W / 35 W	113 W / 202 W	312 W / 470 W
Heat Dissipation	100 BTU/h	690 BTU/h	1604 BTU/h
Operating Temperature	32–104°F (0–40°C)	32–104°F (0–40°C)	32–104°F (0–40°C)
Storage Temperature	-31–158°F (-35–75°C)	-31–158°F (-35–70°C)	-31–158°F (-35–70°C)
Humidity	20–95% non-condensing	5–95% non-condensing	20–95% non-condensing
Redundant Power Supplies	—	Supports FRPS-100	Dual Power Supply
System			
Management	CLI (SSH, Telnet, Console), HTTP/S	CLI (SSH, Telnet, Console), HTTP/S	CLI (SSH, Telnet, Console), HTTP/S
Compliance			
Safety Compliance	FCC Part 15 Class B, C-Tick, VCCI, CE, UL/cUL, CB	FCC Part 15 Class B, C-Tick, VCCI, CE, UL/cUL, CB	FCC Part 15 Class B, C-Tick, VCCI, CE, UL/cUL, CB

Other KVM-based VNFs/VMs may function correctly but have not been tested by Fortinet. Other VMs are being continuously tested. Please review the latest release notes for the latest supported list.

PERFORMANCE GUIDANCE

The following table illustrates the performance of FortiGate VNF/VM running on the FortiHypervisor appliance.

	FORTIHYPERVISOR 90E	FORTIHYPERVISOR 500D	FORTIHYPERVISOR 2500E
System Performance			
Firewall Throughput (1518 / 512 / 64 byte UDP packets)	820 / 240 / 43 Mbps	16 / 16 / 9 Gbps	132 / 131 / 37 Gbps
Firewall Throughput (Packets Per Second)	64.5 Kpps	13.5 Mpps	55.5 Mpps
Firewall Latency (64 byte UDP packets)	100 µs	2.18 µs	1.26 µs
Concurrent Sessions (TCP)	3.3 Million	3.8 Million	17 Million
New Sessions/Second (TCP)	9,500	56,000	192,000
IPsec VPN Throughput (512 byte packets)	70 Mbps	14 Gbps	88 Gbps
SSL-VPN Throughput	60 Mbps	750 Mbps	2.2 Gbps
IPS Throughput (HTTP / Enterprise Mix)	277 Mbps / TBC	2.3 Gbps / 750 Mbps	14.6 Gbps / TBC
SSL Inspection Throughput	105 Mbps	850 Mbps	2.6 Gbps
Application Control	TBC	770 Mbps	TBC
Threat Protection Throughput	TBC	450 Mbps	TBC

Performance results obtained by running FortiGate VM on FortiHypervisor 500D, 90E and 2500E in an internal lab under ideal test conditions.

ORDER INFORMATION

Product	SKU	Description
FortiHypervisor-ISO	FHV-ISO	FortiHypervisor Virtual Appliance ISO Image, installable on compatible x86 third-party hardware (contact Fortinet for compatibility list).
FortiHypervisor 90E	FHV-90E	Hybrid Virtual Appliance — 16x GE RJ45 ports (2x Mgmt/HA ports, 14x switch ports), 1 dual-core CPU, 8 GB RAM, 1 TB internal storage.
FortiHypervisor 500D	FHV-500D	Hybrid Virtual Appliance — 10x GE RJ45 ports, 8x GE SFP slots, SPU accelerated, 1 quad-core CPU, 16 GB RAM, 4 TB internal storage.
FortiHypervisor 2500E	FHV-2500E	Hybrid Virtual Appliance — 34x GE RJ45 ports (2x Mgmt/HA ports, 32x switch ports), 10x GE SFP+ slots, SPU accelerated, 1x 6-core CPU, 32 GB RAM, 6 TB internal storage.
Optional Accessory		
1 GE SFP LX Transceiver Module	FG-TRAN-LX	1 GE SFP LX transceiver module for all systems with SFP and SFP/SFP+ slots.
1 GE SFP RJ45 Transceiver Module	FG-TRAN-GC	1 GE SFP RJ45 transceiver module for all systems with SFP and SFP/SFP+ slots.
1 GE SFP SX Transceiver Module	FG-TRAN-SX	1 GE SFP SX transceiver module for all systems with SFP and SFP/SFP+ slots.

FortiGate VMs are not included in FortiHypervisor SKU and must be ordered separately. For more information on FortiGate VM, please refer to the datasheet at **https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/FortiGate_VM.pdf**

For more informataion on how to buy, please contact Fortinet, Tel: +1.408.235.7700, **www.fortinet.com/sales**

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