



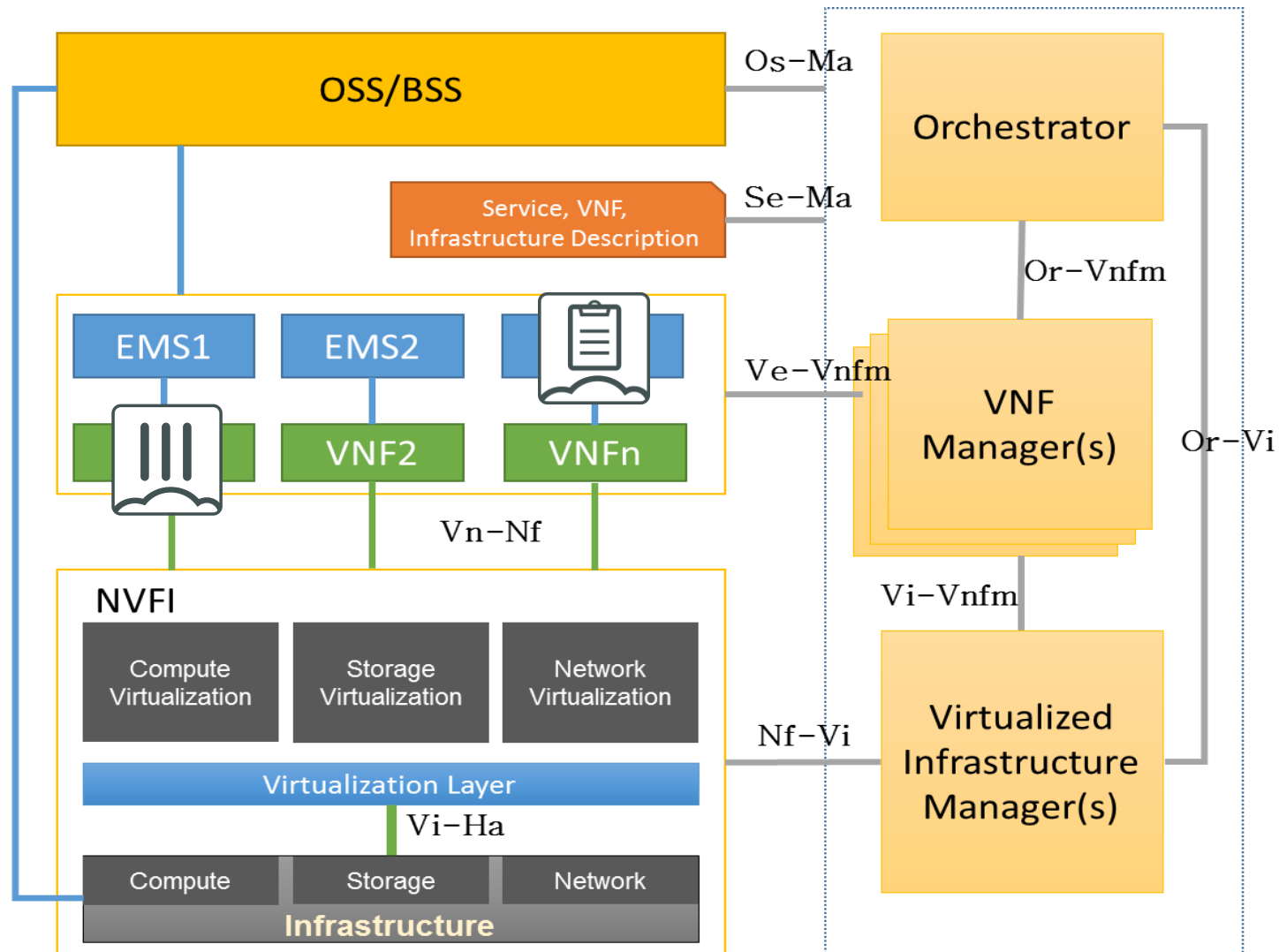
VNFs for Security

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NFV Architecture – Security VNF



Fortinet Security VNFs Tested



Open Source
MANO

- Fortinet integrated with OSM since Release 2
- New with Release 5
 - Ansible based primitives
 - 5G POC
- OSM is our first go to for testing: NSH, 5G, MEC
- Generic vnfd, demos (by Fortinet):
 - <https://github.com/fortinet-solutions-cse/fortistacks/tree/master/osm>
- Joint PoCs:
 - OSM PoC #2
 - [Multi Vendor Showcase](#)

What Makes a Security VNF Viable ?

Broad Integration

Available to launch in all major NFVIs



vmware™



cloud-init



{ REST }

Automation

Support day0/day1/day2 configuration automation

Cloud Grade Performance

Fast instantiation and high throughput



Fortinet Security VNF – FortiGate NGFW

- Feature parity with FortiGate appliance
 - *On any Cloud, any hypervisor*
- **Leanest security VNF image in the market !!**
- Performance:
 - *Boot in seconds*
 - *Leverage accelerations (EPA)*
 - *Proven throughput and scalability*
- Active-Active Session Synchronization
- Utility license model – PAYG
- High resiliency and scale out/up

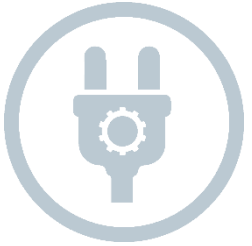


FortiGate Automation

- Day zero – bootstrapping
 - Cloud Init
 - License
 - Full configuration
- Day 2 Configuration
 - REST APIs
 - Ansible
 - FortiOS Terraform modules



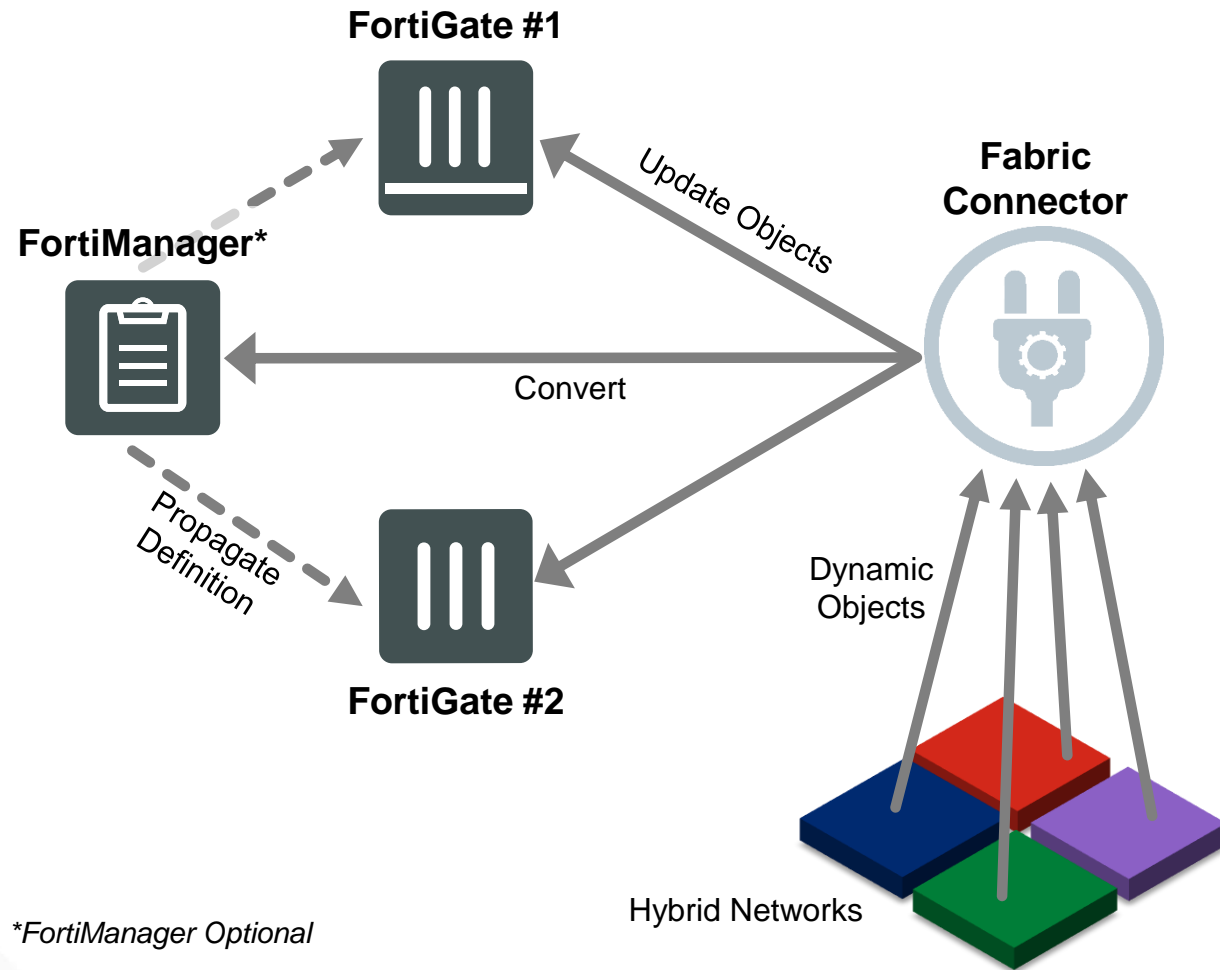
FortiGate Security Automation – Fortinet Fabric Connectors



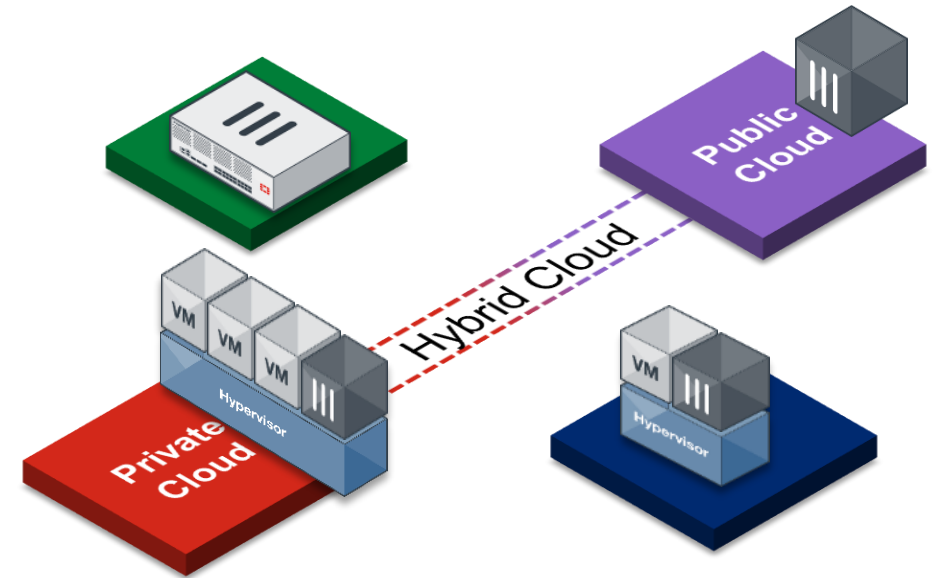
- Fortinet “Plug-ins” that allow visibility of third party objects in FortiGate firewall
- The Objects created by the Connector correspond to FortiGate Firewall address (Fabric Connector Address)
- When the Object content changes in the third party platform the Connector Address get automatically updated
- Continuous communication between Fortinet and third party platform

Fabric Connector in Action | Automated Synchronization

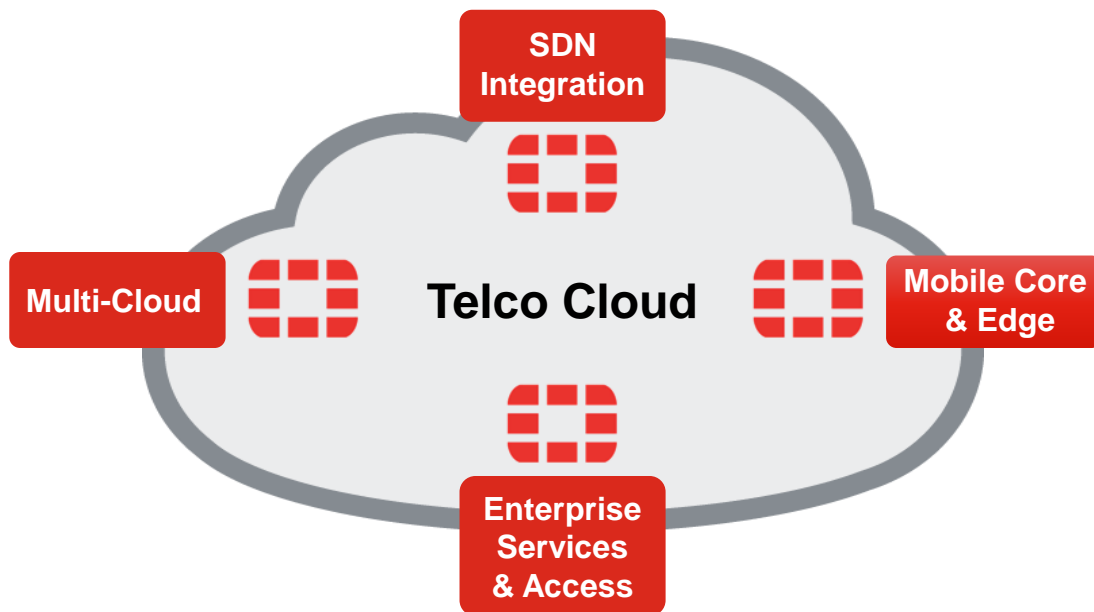
No manual updates necessary



*FortiManager Optional



Security for the Telco Cloud/Mobile Core



CHALLENGE

- Increasing need by Mobile Carriers to deliver security services as VNFs for LTE & 5G mobile infrastructures

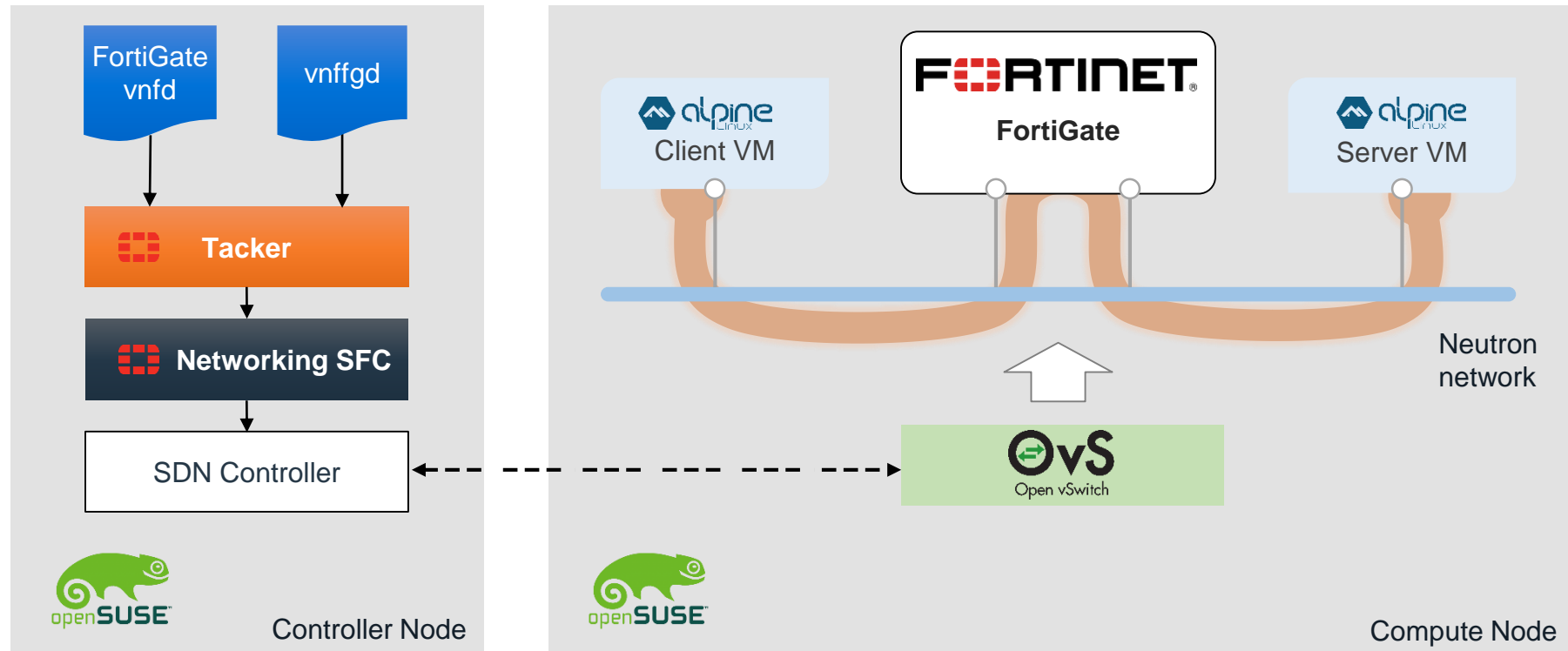
SOLUTION

- Fortinet VNFs provide a rich set of security functions for the virtual mobile infrastructure
- Solution focus areas—4G to 5G security, Edge Cloud & Cloud RAN, Telco Cloud

BENEFITS

- VNFs support modern acceleration technologies such as DPDK, SR-IOV and Advanced Encryption
- Securing and enhancing the Telco Cloud with flexible, open Multi-Cloud capabilities & Integration
- VNFs for MEC—Edge Security & Control, User-plane inspection, Service chaining and SecGW

Service Function Chaining w/ NSH



- **FortiGate understands packets with NSH header !!**
- Service insertion/chaining with FortiGate – map NSH id to security policy

Vmware NSX - V

vmware®

FORTINET®
Fabric-Ready

Key Solution Features

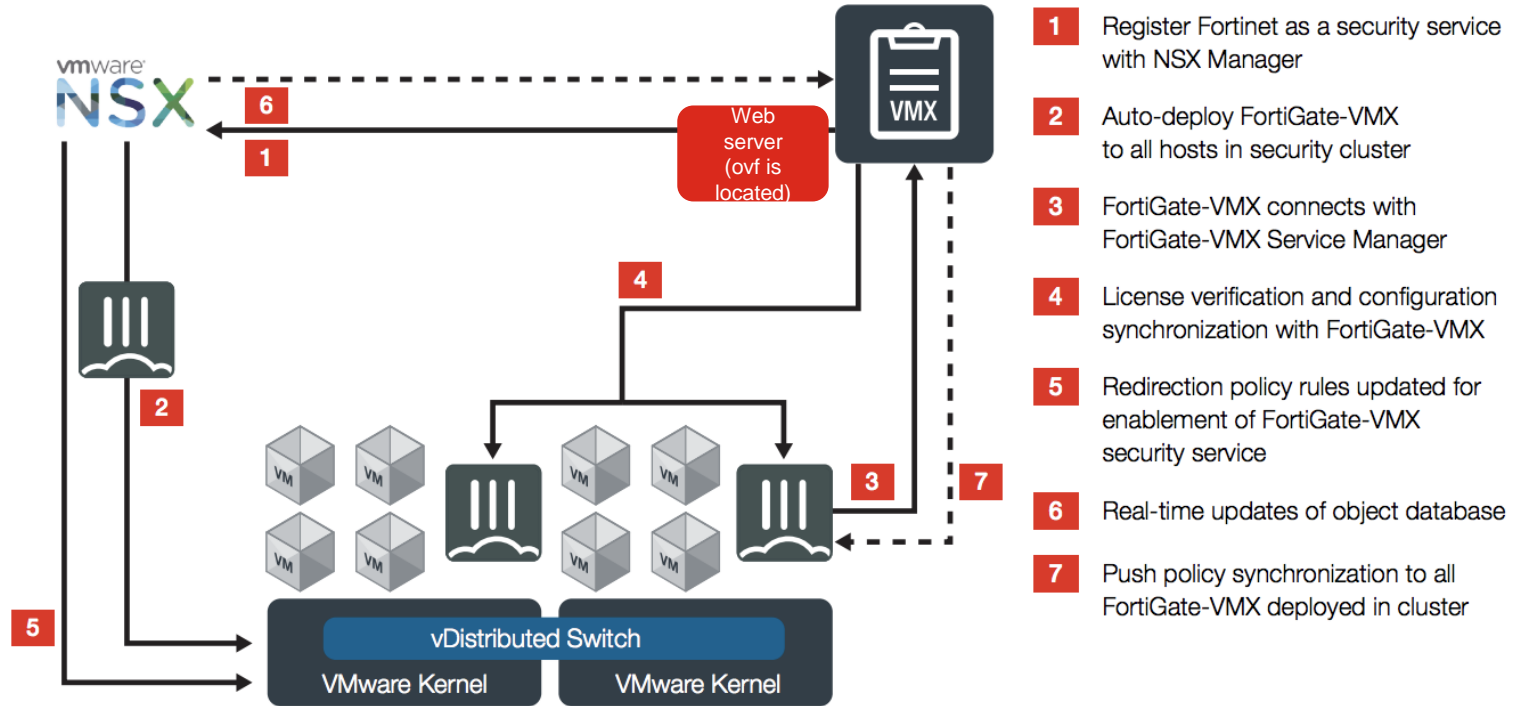
- Automated provisioning and orchestration via VMware NSX
- Persistent security utilizing VMware NSX micro-segmentation
- Secure VXLAN segments with advanced protection across tiers

Key Benefits

- Automated deployment and orchestration of FortiGate-VMX for Software Defined Data Centers/Private Cloud
- Operationally feasible NSX-based micro-segmentation with advanced threat protection of east-west traffic

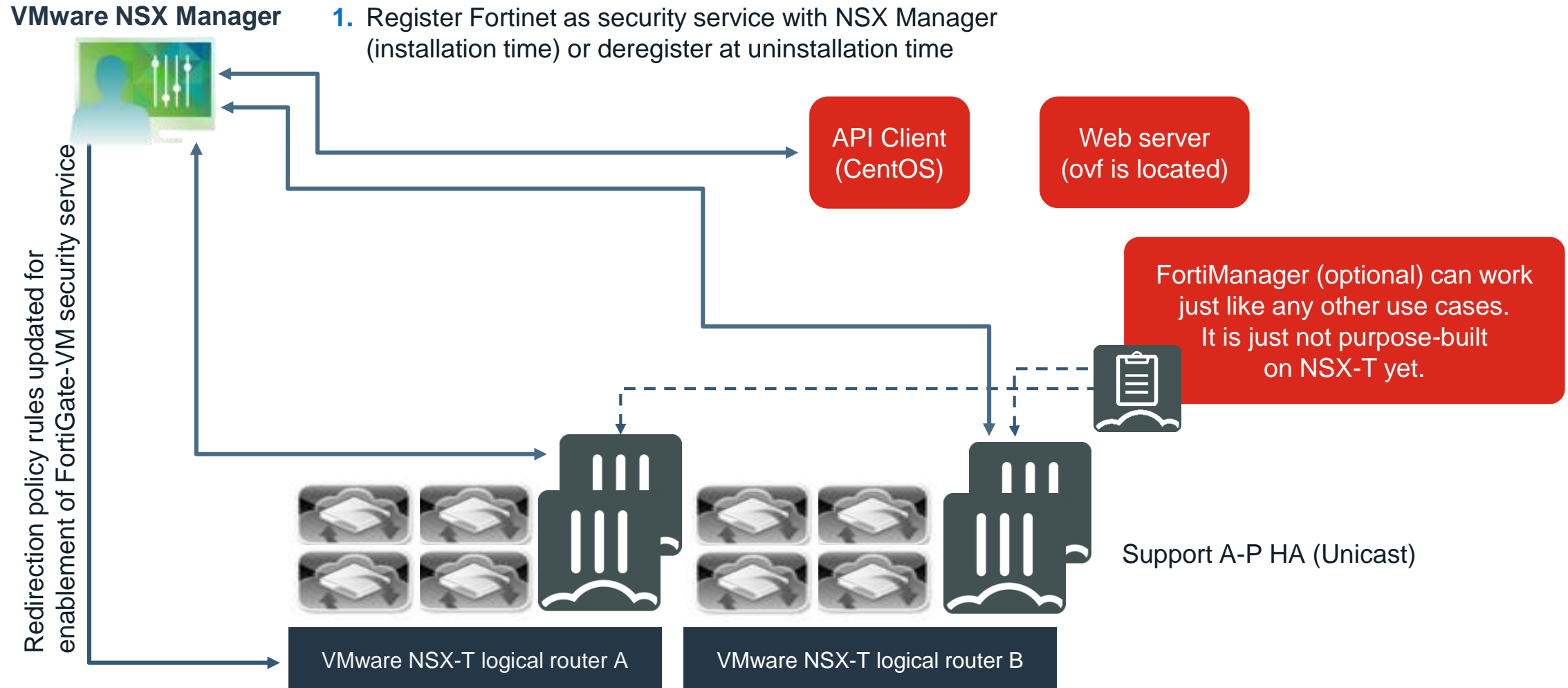
Integration: NetX SDK

- Purpose-built product “FortiGate-VMX”
- SDN Connector

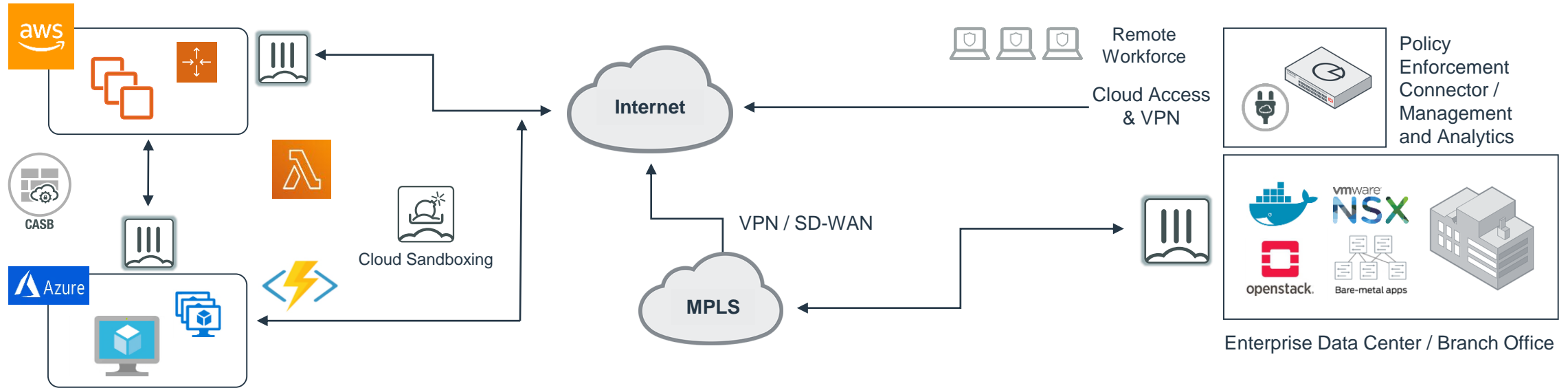


Fortinet-VMware Joint Solution

Integration—VMware-NSX-T (North-South)



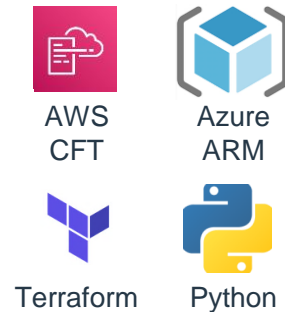
FortiGate – A Multi-Cloud Security VNF



Zero Trust Deployment

- Block lateral threat propagation in East-West direction
- Comprehensive protection in North-South direction
- Advanced security (L7 Firewall, IPS, and ATP) for all traffic paths
- Security workflows that adapt to deployment changes
- Auto-provisioning of security services across all platforms

End-to-End Automation



Operational Simplicity

- Single Policy Set across all deployments
- Leverage metadata instead of traditional IP in security policies
- Automated workload and metadata discovery
- Centralized management & analytics across deployments
- Intuitive visibility
- Automated VPN provisioning for multi-cloud connectivity
- Quarantine infected workloads automatically

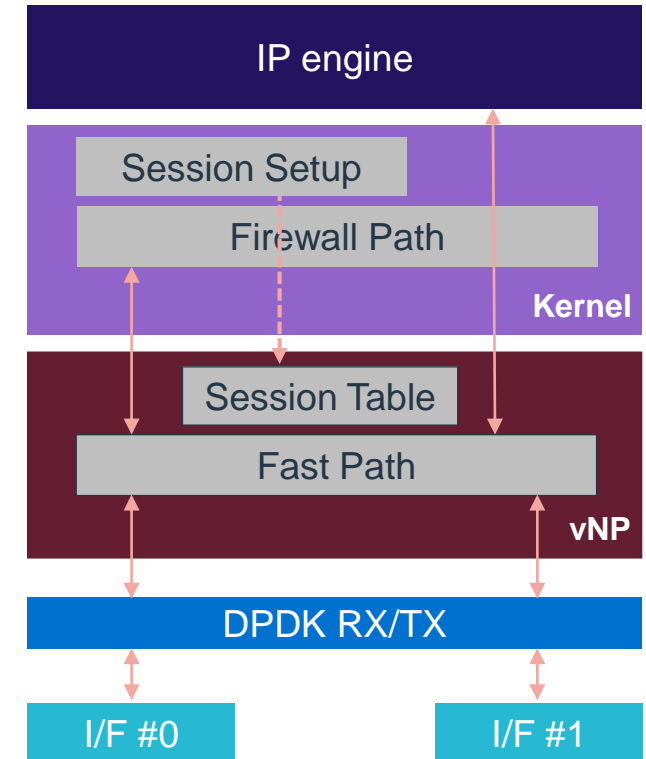
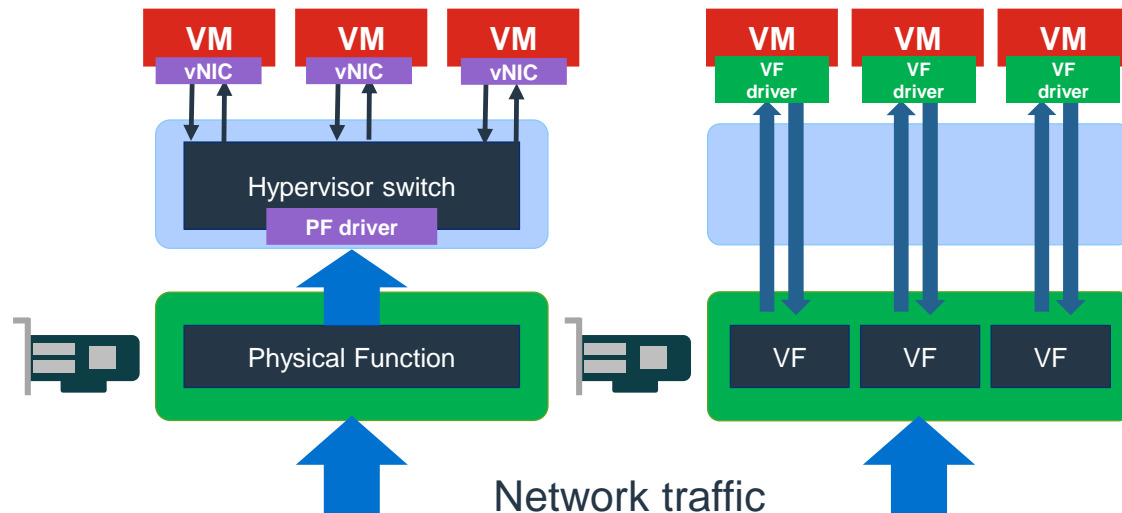
Cloud Security Components

- Policy Enforcement Connector
- Management / Analytics
- Next Generation Firewall
- Compliance Automation
- Advanced Threat Protection
- VPN IPSec Tunnels
- Web Application Firewall
- Identity and Access Management
- Cloud Access Security Broker
- Auto Scaling Security
- Denial of Service Protection

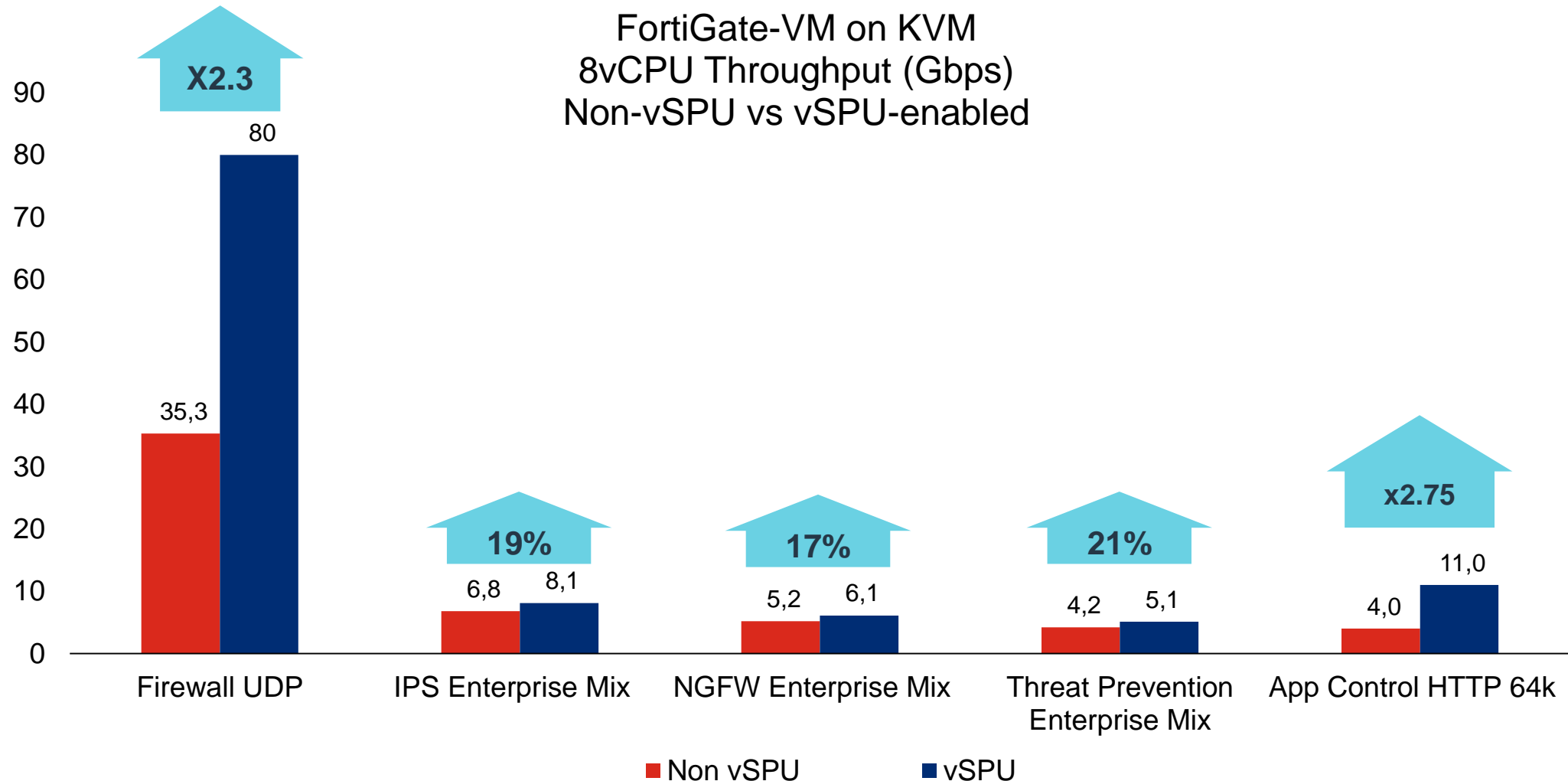
FortiGate-VM Performance Enhancements

Enhancing performance by supporting:

- SR-IOV
- DPDK+vNP Offloading (aka vSPU)
- Intel QuickAssist Technology **New**

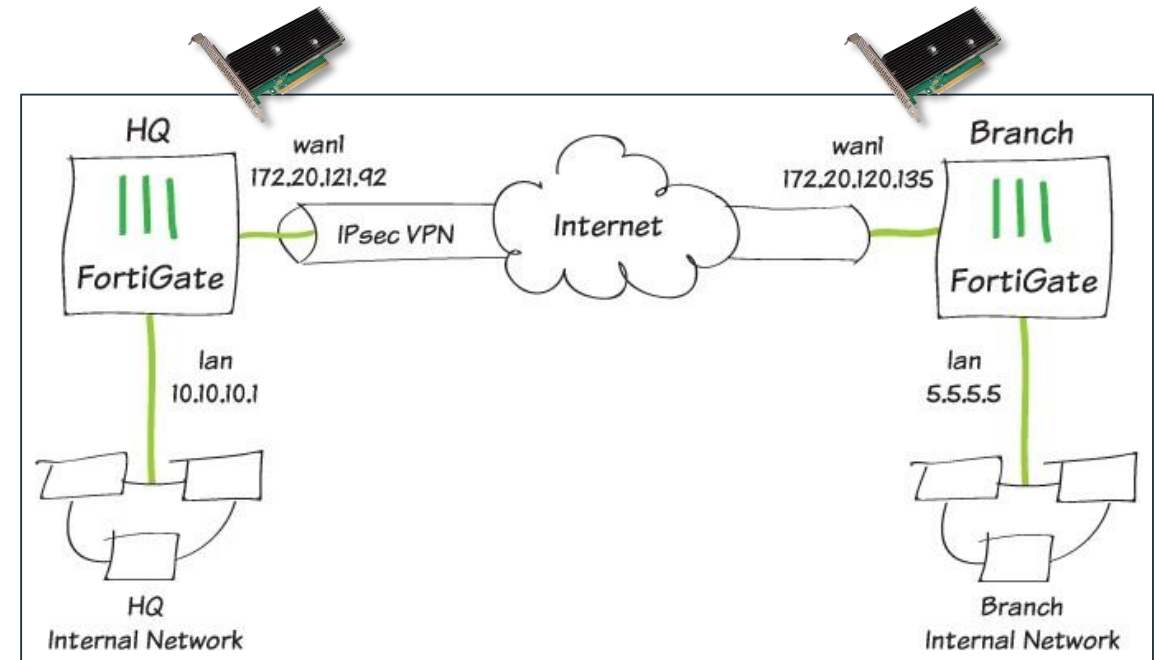


Performance Enhancements with DPDK+vSPU Offloading

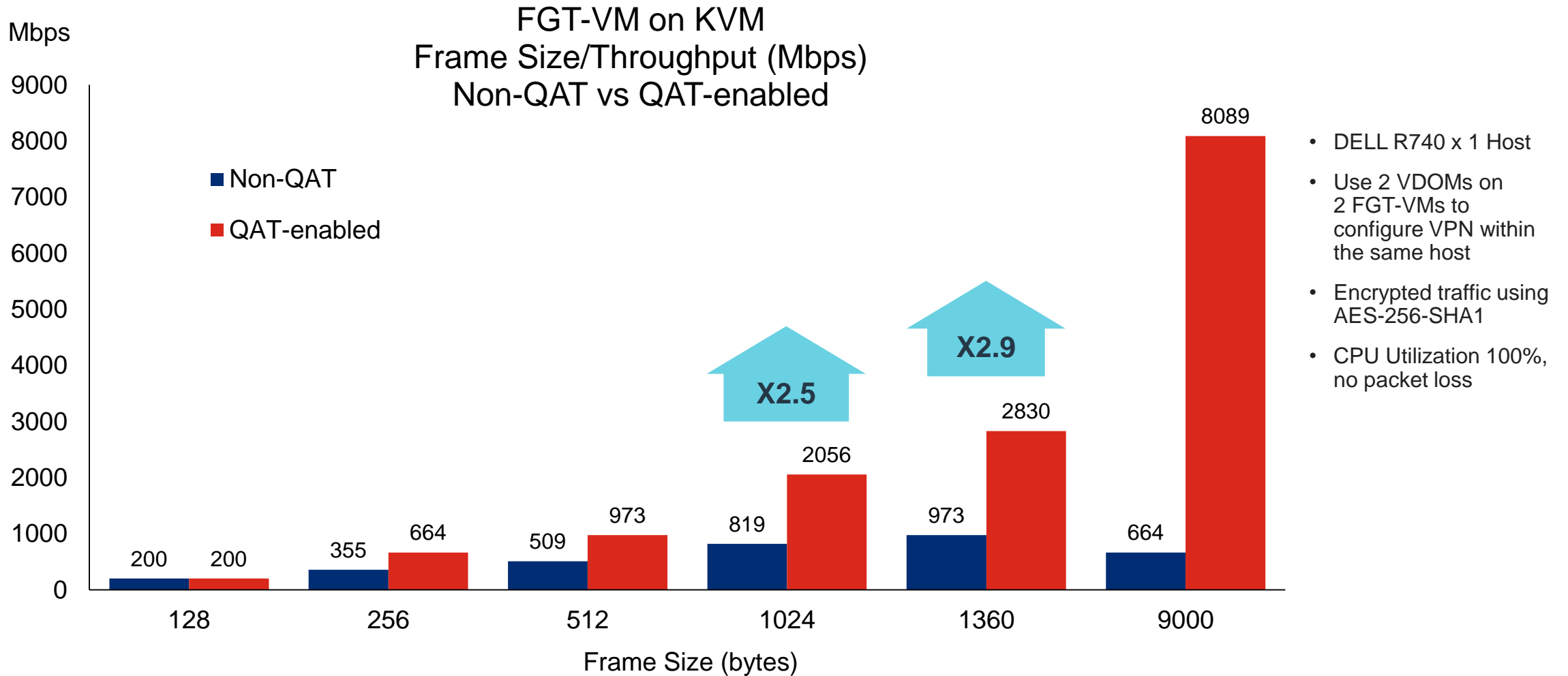


Intel QAT Support

- Intel cryptographic accelerator
- FortiGate-VM IPSec-VPN
- Supported on v6.2.0 FortiOS
- Support 8970 & 8950 adapters
 - More adapters/chipsets to be supported in future versions
- Other QAT benefits such as packet compression (WAN optimization) to be considered



Performance Enhancements with Intel QAT



Fortinet Security VNF – Summary

- Integrated and tested with Open Source MANO (OSM)
- Leanest security VNF image in the market
- Proven throughput and scalability
- Scale up/out support
- Day0/Day1/Day2 configuration automation
- SFC/NSH support
- Utility license model – PAYG

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