SOLUTION BRIEF

Fortinet and NXP Security & SD-WAN Solution

Enables cost-effective hardware-accelerated platforms for advanced security and networking

Executive Summary

The Fortinet and NXP solution leverages the NXP Layerscape network functions virtualization (NFV) platform and Fortinet FortiGate virtual network functions (VNFs) to deliver integrated security and software-defined wide-area networking (SD-WAN) services in a virtualized environment. The joint solution enables organizations to cost-effectively secure their deployments with unparalleled security protection, and improve user experience and simplify operations with Fortinet Secure SD-WAN.

Challenges

Operators increasingly wish to adopt a scalable white box approach for their customer premises equipment. This approach can efficiently address linear performance requirements from a wide variety of enterprise and SME customers while delivering unified security and SD-WAN services in a virtualized environment.

However, operators' networks today are often cluttered with many diverse monolithic systems that drive up the cost of delivering and sustaining services. They need solutions that can unify services onto a common hardware platform at a much lower cost.

NXP and Fortinet recently established a technology partnership to address these needs. By enabling Fortinet's industry-leading FortiGate® next-generation firewall (NGFW) as a security and SD-WAN VNF on NXP's Layerscape® family of multicore network processors based on Arm® technology, we enable operators to meet the growing demands of their enterprise customers securely, efficiently and in a cost-effective way. The joint solution enables organizations to effectively secure their deployments, improve user experience, and simplify operations.

Joint Solution

NXP's Layerscape platforms complement the advanced security and network access features from Fortinet by accelerating host switching and Internet Protocol security (IPsec) processes, thereby delivering class-leading performance that can also scale down to very cost-effective form factors. Also, the integrated programmable hardware accelerators reduce the overhead on the CPU cores, freeing up cycles for Fortinet's other in-line security functions to perform more efficiently.

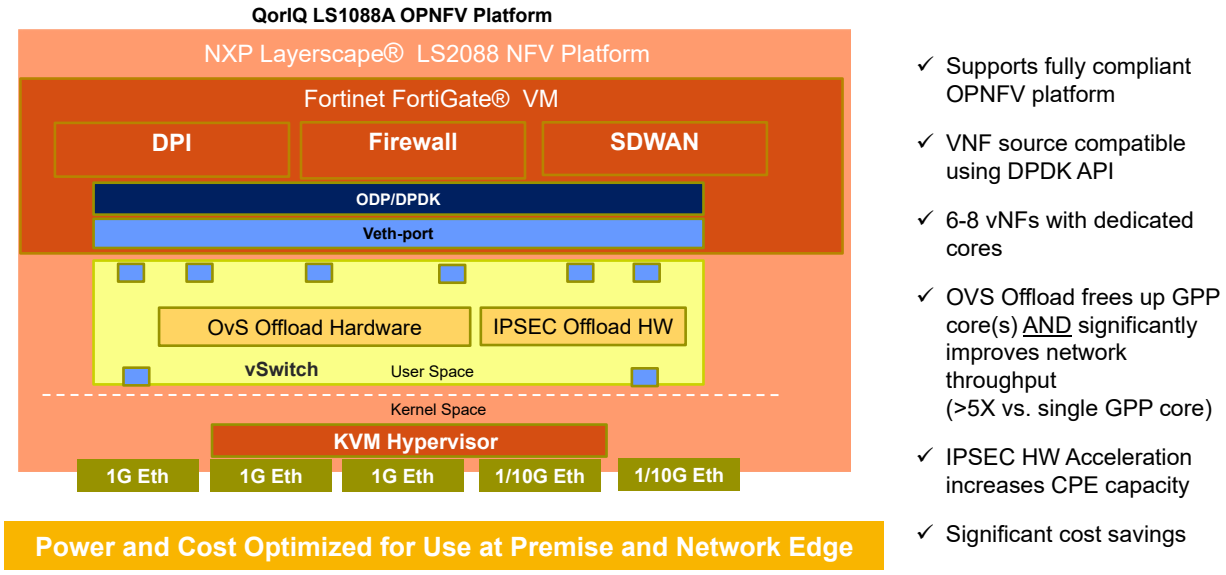
The functionality of the joint solution is summarized in the illustration below.

Joint Solution Benefits

- Scalable architecture delivers up to 20 Gbps of hardware-accelerated host switching performance
- Accelerated end-to-end IPsec tunneling for securing data over shared access
- Scalable family of Layerscape processors covering the spectrum of customer edge scenarios
- Advanced Layer 2 to Layer 7 security integrated with SD-WAN simplifies customer edge deployments
- Proactive delivery of threat protection powered by artificial intelligence (AI)
- Improve end-user experience and simplify operations at the WAN edge with Fortinet Secure SD-WAN

FORTINET Fabric-Ready

Virtualizable CPE with QorIQ LS1088A/LS2088A



- ✓ Supports fully compliant OPNFV platform
- ✓ VNF source compatible using DPDK API
- ✓ 6-8 vNFs with dedicated cores
- ✓ OVS Offload frees up GPP core(s) AND significantly improves network throughput (>5X vs. single GPP core)
- ✓ IPSEC HW Acceleration increases CPE capacity
- ✓ Significant cost savings

Figure 1: Solution components.

Solution Components

The Layerscape LS2 family of processors delivers unprecedented performance and integration for the smarter, more capable networks of tomorrow. The eight-core Layerscape LS2088A and the four-core LS2048A multicore processors integrate Arm Cortex®-A72 cores with the advanced, high-performance datapath and network peripheral interfaces required for networking, telecom/datacom, wireless infrastructure, military, and aerospace applications.

The next-generation datapath architecture combined with a powerful software toolkit provides a higher level of hardware abstraction and makes software development quick and simple.

The Fortinet FortiGate NGFW Virtual Appliance provides industry-leading multi-cloud security and high-performance threat protection. FortiGate VM offers a consistent security posture and protects connectivity across public and private clouds, while high-speed VPN connections protect data. FortiGate VM shares the same advanced features of the FortiGate NGFW, enabling and enforcing security policies across all environments and providing single-pane-of-glass management. FortiGate VM ensures complete application security and secure connectivity by augmenting microsegmentation with advanced L7 security.

FortiGate VM offers protection from a broad array of threats, with support for all of the security and networking services offered by the FortiOS operating system available on any public cloud, private cloud, carrier VNFs, and physical form factors. It allows organizations to leverage a consistent operational model with existing skill sets.

It delivers the industry's highest performance, value, and flexibility for complete content and network protection with the smallest footprint virtual machine (VM) and the fastest boot times for flexible deployments for the cloud and carrier NFV deployments. Leveraging the virtual security processing unit (vSPU) architecture, it supports high-performance applications in the cloud for use cases requiring scale-up architectures such as virtual private network (VPN), intrusion prevention system (IPS), and application control.

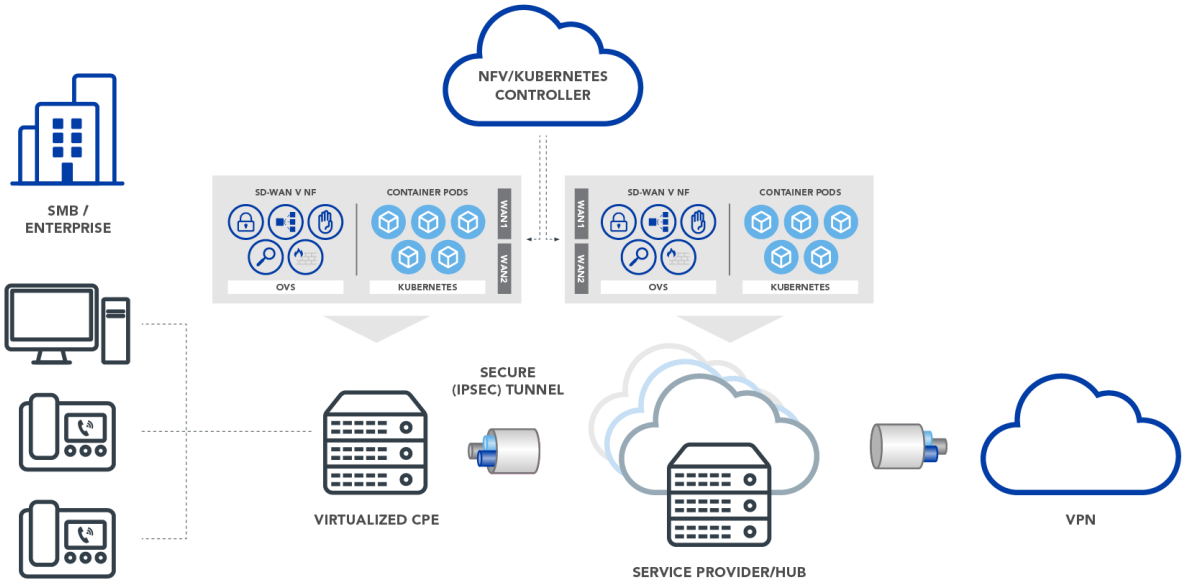
Arm

Arm-based universal customer premises equipment (uCPE) lowers cost, improves efficiency, and accelerates performance to deliver a lower total cost of ownership (TCO). With NXP Layerscape processors, customers can expect a substantial reduction in energy consumption with a balance of hardware acceleration and a flexible Arm core count.

A flexible, Arm-based platform that continuously delivers new services has never been more accessible, and Arm's software ecosystem continues to accelerate with new players who enable more services to meet specific needs. Arm is continuously adding new players to the software ecosystem, enabling more services to meet specific needs. With Fortinet FortiGate VM running on Arm, now there is a world-class virtual firewall that offers a fully featured solution, running in the smallest white box and also supporting more performance on larger devices.

Use Cases

Virtual Enterprise CPE (vE-CPE) Use Case



Operators' next-generation deployments will require coexistence of VMs and containers on a unified platform. Operators will deploy containerized non-networking functions that are required to meet their business key performance indicators (KPIs), and critical networking and security functions will be delivered by Fortinet's industry-leading FortiGate VM.

NXP's Layerscape platforms and NFV infrastructure are primed for such hybrid architectures, and can handle associated service chaining overheads without loading the Arm cores.

About NXP Semiconductors

NXP Semiconductors N.V. enables secure connections for a smarter world, advancing solutions that make lives easier, better, and safer. As the world leader in secure connectivity solutions for embedded applications, NXP is driving innovation in the automotive, industrial & IoT, mobile, and communication infrastructure markets. Built on more than 60 years of combined experience and expertise, the company has approximately 29,000 employees in more than 30 countries and posted revenue of $8.88 billion in 2019. Find out more at www.nxp.com.

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