



Integrated Communications Solution

Network Services Switching Platform

Networking application solution based on VortiQa SDN software and high performance QorIQ multicore SoC processor

Overview

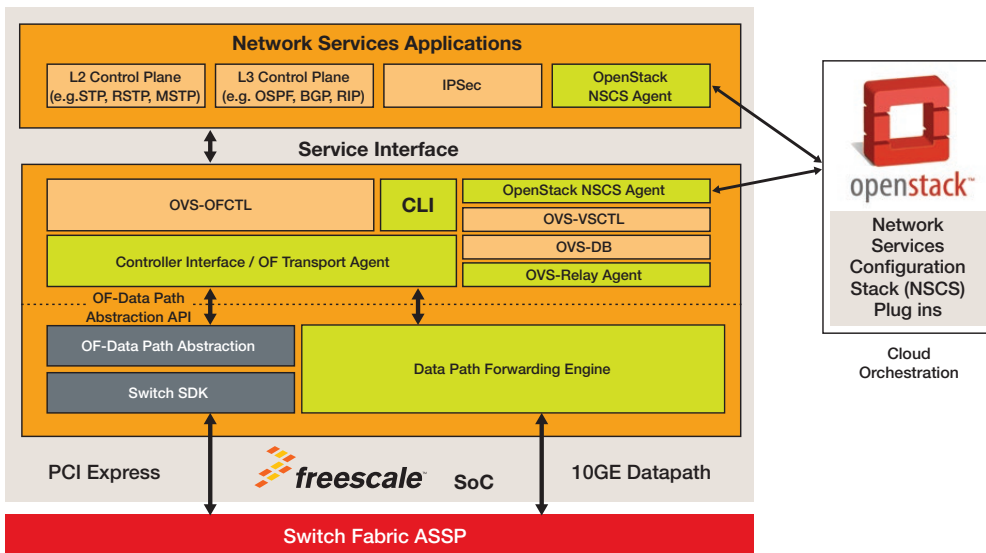
The demands on networks are ever changing because of emerging market trends such as Big Data, cloud based services, pervasive computing and the Internet of Things (IoT). In order to effectively enable these trends, networks must get smarter, more secure, easier to manage and interoperable.

Freescale is a prominent thought leader in developing advanced communications solutions and platforms. A recent addition to this portfolio is the Network Services Switching Platform, an innovative routing/switching solution for Software-Defined Networking (SDN), with large processing capacity for Network Function Virtualization (NFV).

The Network Services Switching Platform is a cost and power optimized, integrated software and hardware solution delivering high-performance forwarding and extensible network services. The platform integrates Freescale's high performance QorIQ T4240 communications processor and a high performance switch fabric application-specific standard product (ASSP). The QorIQ T4240 adds intelligence and programmable datapaths to high performance switching.

The Network Services Switching platform offers the flexibility to dynamically place data path workloads in optimal locations in the data center or network, breaking the artificial separation between switches and servers for services that are location specific, such as routing and IPSec VPN.

Network Services Switching Platform with SDN Capability



■ Freescale functions
 ■ Community/Open Source
 ■ Third party switch software
 (Commercial-grade VortiQa SDN software)



The platform is extensible and future proofed by virtue of its programmability and high performance multicore processor, allowing network services to be deployed, updated or removed on the Freescale processor. The Network Services Switching Platform addresses the emerging SDN/NFV market segment needs comprehensively by employing extreme flexibility to evolve with the network architecture.

The platform software includes commercial-grade VortiQa SDN software covering network application/service integration, control plane and data plane fast path for Layer 4 and above services, with OpenFlow version 1.3 plus extensions and virtual machine hosting. The currently supported Layer 4+ protocols and applications include policy based routing and IPSec VPN. The software bundle also supports standard Layer 2 & Layer 3 forwarding. In addition to pre-integrated, optimized VortiQa software, the platform leverages Open Source controllers, orchestrators, and common networking applications. OEM suppliers and network operators can add unique networking applications and Virtual Network Functions (VNF) to this solution.

The solution also includes the software flexibility of the White Box Switch ecosystem, bundling the open network install environment (ONIE) to provide an option to use third party network operating systems.

Development Support

Advantech, a Freescale ecosystem partner collaborated on developing this high-performance hardware platform. This appliance is based on the high-performance QorIQ communications SoC and standard Layer 2 ASSP switch fabric.

Freescale Networking Software and Services Group (NSSG) offers value-added commercial services including enhancements, roadmap acceleration, and support.

Benefits and Features

Benefits	Features
Processor with processing bandwidth for additional future network services	<ul style="list-style-type: none"> • Freescale QorIQ T4240 with 24 virtual cores at up to 1.8GHz • Up to six 8 GB DDR3 UDIMMs • Hardware virtualization support • Data Path Acceleration Architecture, including hardware acceleration for Security, Deep Packet Inspection and Data Compression
High Performance L2-L3 forwarding	<ul style="list-style-type: none"> • Widely accepted ASSP based switch fabric • 680 Gbps forwarding bandwidth with 10Gbps and 40Gbps ports • Layer 2 and Layer 3 forwarding using switch fabric capabilities
High port count I/O in a 1U rack-mount design	<ul style="list-style-type: none"> • Supports 6 QSFP and 44 SFP+ modules
L4-L7 network services	<ul style="list-style-type: none"> • Software data path with performance optimization on Freescale hardware accelerators • IPSec VPN utilizing Freescale Open Network (ON) Switch software and QorIQ T4240 processor's crypto accelerator • Policy-based routing • Multi-table and Multi-TTP support for scalable and versatile functionality • Freescale-defined OpenFlow extensions
Open standards based platform	<ul style="list-style-type: none"> • SDN OpenFlow 1.3 compliant data plane, control plane software with Linux application integration, e.g. Quagga and IPSec VPN. • ONIE support • Open IPMI compliant hardware management function
Extensible & Future-proofed	<ul style="list-style-type: none"> • High performance multicore services processor for hosting additional network services such as load balancer and application delivery controllers • Support for adding Virtual Network Functions within a virtual machine managed environment • Performance-optimized embedded SDN control plane software supports addition of SDN applications • Commercial-grade software bundled with hardware for SDN & NFV applications in data center, service provider and campus environments. <ul style="list-style-type: none"> ◦ For data center and campus environments, examples include firewall, server load balancing, and QoS ◦ For telecom environments, examples include evolved packet core functions, such as IPSec and QoS
Robust hardware design	<ul style="list-style-type: none"> • Redundant and hot-swappable AC/DC PSU • Four redundant hot-swappable fan modules • Redundant 128 GB solid state drives

The software packages can be licensed in source code in multiple tiers to enable customization and/or enhancements of the software functions on the Network Services Switching Platform Hardware.

Pricing / Availability

The Network Services Switching Platform will be available in May 2015. Please contact your Freescale representative or Advantech contact for availability and pricing.



For more information, visit freescale.com/NSS

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Document Number: NETSSFS REV 1 cc