NXP

freescale
VortiQa

VortiQa Applications Software

VortiQa Open Network (ON) Switch Software

Commercial-grade, OpenFlow™ protocol-compliant data plane software

Overview

The demands on network infrastructure are becoming challenging because of market drivers such as virtualization, big data, cloud-based services, pervasive computing and the Internet of Things (IoT). In order to address these challenges in a cost-effective manner, networks must get smarter, more secure, scalable, and easily manageable and interoperable.

The software-defined networking (SDN) paradigm aims at network deployment and configuration management agility, dynamic scaling of networks, network interoperability and open innovation by separating application, control and data forwarding planes. Open Networking Foundation's OpenFlow protocol is a widely accepted SDN protocol that defines the interaction between data plane and control plane functions.

Freescale has been a prominent thought leader in bringing out advanced communications platforms and solutions. VortiQa open network (ON) switch software, along with related commercial support and services, augments Freescale's advanced communications solutions portfolio. Freescale ON switch software is OpenFlow version 1.3.x compliant and has extensions to support Layer 3 and above protocol functions such as IPsec VPN and policy based routing in addition to Layer 2 and Layer 3 data forwarding.

VortiQa Open Network Switch Software Block Diagram

<VortiQa Data Plane Switch>
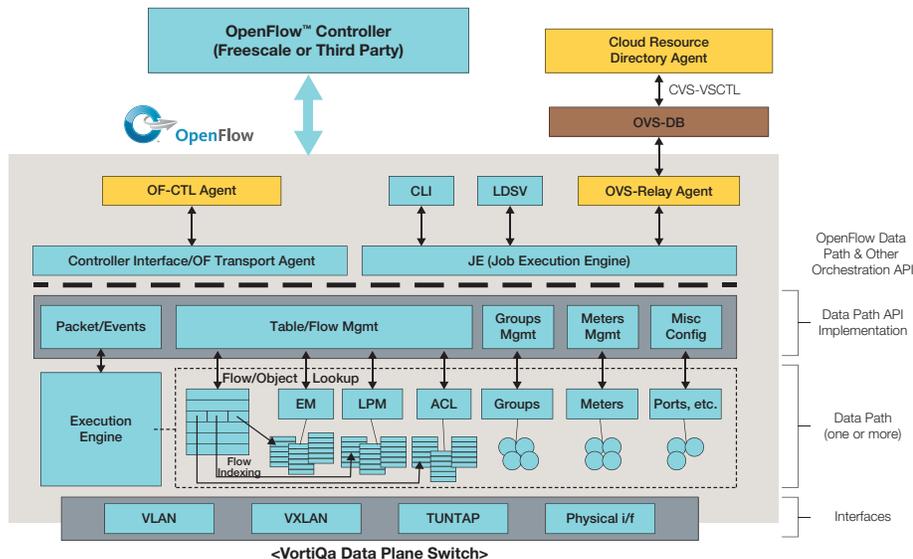
The software is optimized to leverage Freescale QorIQ communications processors' unique capabilities such as data path acceleration architecture (DPAA) and data path programmability and offers scalable and high-performance data plane processing functions.

Key Benefits

VortiQa ON switch software is optimized for and pre-integrated on Freescale QorIQ communications processors. The product, with its commercial-grade quality, enables customers to incorporate OpenFlow SDN data plane functions in their advanced networking designs based on Freescale QorIQ communications processors in a cost-effective and timely manner.

The product is built on Freescale enablement software, Linux® SDK, and runs in Linux user space with optimized packet processing. The product readily leverages Freescale communications processors unique capabilities, including data path acceleration architecture, security engine and advanced packet processing layers depending on the hardware features available.

The product is easily portable across multiple Freescale communications processors with moderate effort, enabling customers re-use the software investment across a range of their product lines, such as low-end designs with optimized memory footprint to very high-end designs with large capacity of flows and IPsec tunnels and very high throughput, depending on the underlying QorIQ communications processor used.

Freescale offers commercial support and services around the product to jump-start customer designs there by offering further time-to-market and time-to-revenue advantages.

Key Features

- Complies with OpenFlow v1.3.x specification and interoperates with third-party OpenFlow controllers compliant with OpenFlow v1.3.x specification

- Multiple data path instances

- Virtual Ports—VLANs

- Table processing
  - Any number of tables per pipeline, custom extensions
  - Exact match and longest prefix match (LPM)
  - Access control list support
  - Flow indexing for fast flow search
  - Instruction/action extensions—support for IP forwarding and IPsec VPN, IPsec VPN can be readily leveraged when used with Freescale controller

- Tags: MPLS, multiple MPLS, VLAN and multiple VLAN (QinQ)

- Groups object support

- Multipart messaging support, including tables features and port description

- Auxiliary connection support

Product Form

Product Form

VortiQa ON switch software is developed using the highly portable ANSI C programming language and is optimized to deliver the highest performance on Freescale's QorIQ communications processors.

The product is delivered after proving it works on selected QorIQ processor and software development kits (SDKs) so that customers jump-start integration on target platforms based on the QorIQ processor used and SDK with moderate effort. The standard VortiQa ON switch software package is delivered in source code form. It can be integrated in the customer environment in process/library form to run in Linux OS user space environment.

Pricing and Availability

VortiQa ON switch software is currently generally available. Please contact your local Freescale representative for pricing, related software services and support.