Software-Defined Networking

Software-Defined Networking (SDN) is rapidly emerging to the forefront of next-generation networking. By decoupling the control and data planes in network switches and routers, SDN enables rapid innovation and optimization of routing and switching equipment.

Aricent provides comprehensive software frameworks and engineering services across all three layers of SDN - the infrastructure, the controller and the application layer. Our SDN offerings help network equipment manufacturers (NEM) and independent software vendors (ISV) optimize R&D costs and accelerate time to market for innovative SDN solutions.

ARICENT OPENFLOW CLIENT

Aricent’s OpenFlow Client (OFC) is a portable implementation of the OpenFlow client functionality and is compliant with version 1.3.1 of the OpenFlow Switch Specification.

Aricent OFC framework can be used to build pure and hybrid OpenFlow switches. OFC is pre-integrated with Aricent’s industry leading ISS solution that can be leveraged to build hybrid OpenFlow switches and routers. Aricent OFC is platform agnostic and is pre-integrated on leading silicon platforms.

ARICENT FAST PATH FRAMEWORK

Aricent’s Fast Path Framework (FPF) is data-plane processing software for multicore platforms. FPF implements the OpenFlow Packet Forwarding Pipelines. The user plane solution implements the complete OpenFlow switching functionality in software or on a combination of hardware and software by providing offload capability. Aricent FPF implements both run to completion and pipeline models. It is pre-integrated on a leading multi-core platform and can be easily ported on other platforms. In order to improve processor utilization, Aricent FPF has a modular architecture and supports multithreading. Other key features include OpenFlow pipeline support, traffic load balancing and diagnostic support.

ARICENT OPENFLOW TEST AUTOMATION FRAMEWORK (OF TAF)

Aricent’s OpenFlow Test Automation Framework (OF TAF) offers automated test cases for the OpenFlow conformance test specification published by the Open Networking Foundation (ONF). OF TAF enables NEMs to quickly validate their equipment for compliance to the OF Specifications, enabling smoother certification process.
ARICENT SDN CONTROLLER APPLICATIONS

Aricent offers several protocols from its portfolio of widely deployed software frameworks as SDN controller applications. Aricent’s SDN controller applications offer SDN based solutions for challenges faced in data-center, transport and carrier networks today. The applications are pre-integrated on a popular controller platform and can easily be ported across different controller platforms with varying south bound interfaces, including proprietary interfaces and standard interfaces such as OpenFlow. Aricent’s SDN applications enable controller vendors to offer innovative applications on their controller platforms with accelerated time to market and reduced R&D costs.

Routing Service Application

Traditional routing protocols BGP and OSPF are run as Virtual Routing Engine (VRE) on the controller. VRE provides a logically centralized control plane separated from the forwarding switches. It enables optimized routing services such as computation of shortest path and application aware routing. The benefits of the centralized control plane include better view of the network traffic and flexible, intelligent and traffic engineered route control. This improves the network operations, leading to better utilization of network resources.

For routing service across multi-carrier networks, the BGP-Link State (BGP-LS) protocol is run on the controller. BGP-LS learns the route information from adjacent Autonomous Systems (AS) and builds a consolidated and centralized routing database. This central database is used to effectively route traffic across packet networks where two AS are connected by an optical cloud or a multilayer control plane.

OAM for Carrier Networks

OpenFlow protocol does not have provision for fast failure detection at transport level. While this is acceptable in data center networks, same may fall short in carrier networks. To bridge this gap, Aricent’s widely deployed OAM Frameworks for carrier networks – Ethernet OAM IEEE 802.1ag and ITU-T Y.1731 are re-purposed as controller applications, rendering efficient OAM in carrier networks.

SDN AND OPENFLOW ENGINEERING SERVICES

We deliver world-class design, development, testing, and sustenance services to help our customers bring innovative SDN & OpenFlow solutions to market. Coupled with our deep domain expertise in data center, transport, and enterprise networks, we help deliver solutions across the SDN spectrum.

For more information, visit aricent.com/software/software-defined-networking.html

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