

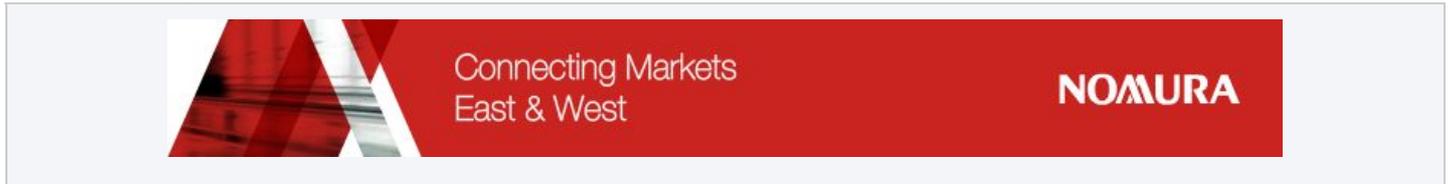
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Broadcom Announces Open Switch Pipeline Specification Targeting Growing SDN Application Ecosystem

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OpenFlow 1.3.1 Compliant Reference Platform Enables Scalable, High Performance Applications on Widely Deployed Switch Architecture

SANTA CLARA, Calif., March 3, 2014 /PRNewswire/ -- Open Networking Summit, 2014 -- Broadcom Corporation (NASDAQ: BRCM), a global innovation leader in semiconductor solutions for wired and wireless communications, today announced the OpenFlow Data Plane Abstraction (OF-DPA) v1.0 specification, software and API, the industry's first openly published implementation of physical switch hardware pipeline abstraction for the Open Networking Foundation's (ONF) OpenFlow 1.3.1 Switch. For more news, visit Broadcom's Newsroom.

OpenFlow, one of the methods for implementing software-defined networking (SDN), enables a standardized way of delivering a centralized, programmable network that can dynamically address changing application requirements. The OF-DPA v1.0 specification, software and API can be used to implement popular use cases such as network virtualization, multi-tenant networks and traffic engineering with higher scale and performance. For more details, view Broadcom's white paper, "Engineered Elephant Flows for Boosting Application Performance in Large Scale CLOS Networks."

"The openly published OF-DPA specification, software and API exposes OpenFlow compliant programming constructs over Broadcom's StrataXGS(R) Ethernet Switch Series," said Ram Velaga, Broadcom Senior Vice President & General Manager, Network Switch. "By mapping the OpenFlow 1.3.1 pipeline to high bandwidth and high density switch silicon like the StrataXGS Trident Series, we are enabling SDN applications to achieve high performance and scale."

The OpenFlow Switch in the ONF 1.3.1 specification defines a pipeline that contains multiple tables, each table containing multiple flow entries. The OpenFlow pipeline processing defines how packets interact with these tables. The OF-DPA v1.0 physical switch hardware pipeline abstraction is an implementation of the OpenFlow 1.3.1 Switch optimized for Broadcom StrataXGS Ethernet Switch devices. The OF-DPA v1.0 software and API enables OpenFlow 1.3.1 agents and controllers to access multiple tables implemented in Broadcom switch devices. The intent is to facilitate general availability of production-quality OpenFlow 1.3.1 switches from OEM and ODM vendors as well as provide a reference platform for use by end users and in academic and industrial research networks.

"OpenFlow multi-table-based programming of the switch hardware can enable implementation of important dynamic provisioning use cases at scale and help lower OPEX," said Akio Iijima NEC Corporation's Chief Product Architect, Converged Network Division. "The open nature of the Broadcom OF-DPA solution and implementation on open switch hardware designs can foster a rich ecosystem of multi-vendor switches. Such switches can be managed by advanced OpenFlow Controllers such as the NEC ProgrammableFlow Controller."

"Big Switch Networks is excited to support Broadcom's OF-DPA initiative because we believe it energizes both the bare metal and open SDN ecosystems," said Rob Sherwood, BigSwitch Networks Chief Technology Officer, "OF-DPA provides open programmable access to 'fast-path' packet-forwarding hardware and is the perfect complement to our Open Network Linux and Indigo SDN agent open source software stack."

Broadcom's OF-DPA v1.0 reference platform includes a comprehensive OpenFlow 1.3.1 compliant specification, software and API for the Broadcom physical switch hardware pipeline abstraction, and an application development kit. The OF-DPA v1.0 software and API can be used with any OpenFlow 1.3.1 agent and controller and is layered over Broadcom's currently available switch software development kit (SDK). The reference platform also includes a turnkey package with an open source reference agent (based on Indigo 2.0) on ODM platforms and hardware systems based on Broadcom-contributed OCP Open Switch Specification. The turnkey package is integrated with the open source RYU OpenFlow 1.3.1 Controller.

OF-DPA Version 1.0 Key Features

- Provides an ONF OpenFlow 1.3.1 compliant switch pipeline and APIs for modifying and querying flow table (e.g., Layer 2 table, Layer 3 table, access control list table) and group table entries, as well as for configuring ports, queues, and VXLAN overlay logical ports.
- Includes OF-DPA v1.0 specification, API library, application development kit, and programmer's guide, all released under the Apache 2.0 license.
- Supports SDN use cases including virtual tenant networks (VTNs), network virtualization using overlays, and traffic engineering.
- Future OF-DPA versions are slated to support additional Broadcom switch features required in service provider and carrier class applications.

Availability

For more information on Broadcom's OF-DPA specification, visit <http://www.broadcom.com/products/Switching/Software-Defined-Networking-Solutions/OF-DPA-Software>

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Beta version of OF-DPA v1.0 software is available now from GitHub with the generally available (GA) version expected in March, 2014. The following switch platforms are supported by the OF-DPA v1.0 reference platform turnkey package - the T3048-LY2 switch based on StrataXGS Trident+ from Quanta and the OCP Open Switch Specification (draft) compliant switch system Niagara 2948-6XLM-OCP based on StrataXGS Trident II from Interface Masters Technologies.

The following OF-DPA related demonstrations will be displayed at the 2014 Open Networking Summit:

1. Broadcom will present a workshop at the developer track on Open SDN Stack. The workshop will cover how to use OF-DPA in an open hardware and software environment (Visit ONS - Developer Track to learn more)
2. Big Switch Networks will be demonstrating OF-DPA running in Open Network Linux
3. Adara Networks will demonstrate use of OF-DPA and StrataXGS Trident II for performing Infrastructure Orchestration and VNF Service Choreography in Multi-tenant Datacenters.

About Broadcom

Broadcom Corporation (NASDAQ: BRCM), a FORTUNE 500(R) company, is a global leader and innovator in semiconductor solutions for wired and wireless communications. Broadcom(R) products seamlessly deliver voice, video, data and multimedia connectivity in the home, office and mobile environments. With the industry's broadest portfolio of state-of-the-art system-on-a-chip solutions, Broadcom is changing the world by Connecting everything(R). For more information, go to www.broadcom.com.

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