

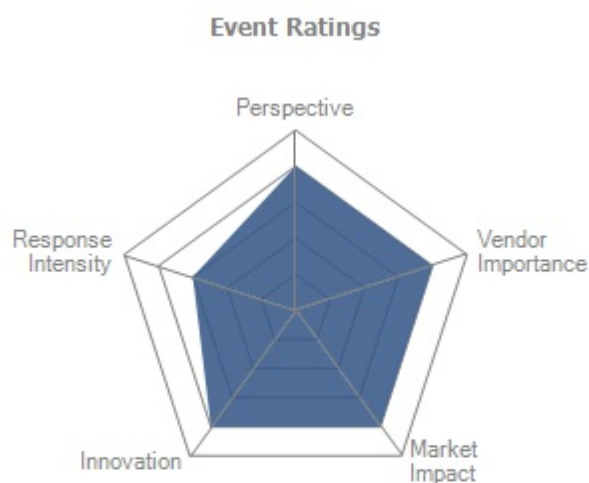
## Brocade Launches its SDN-based Flow Optimizer Application, Armed and Ready to Solve Network Performance Challenges

Hunt, Glen

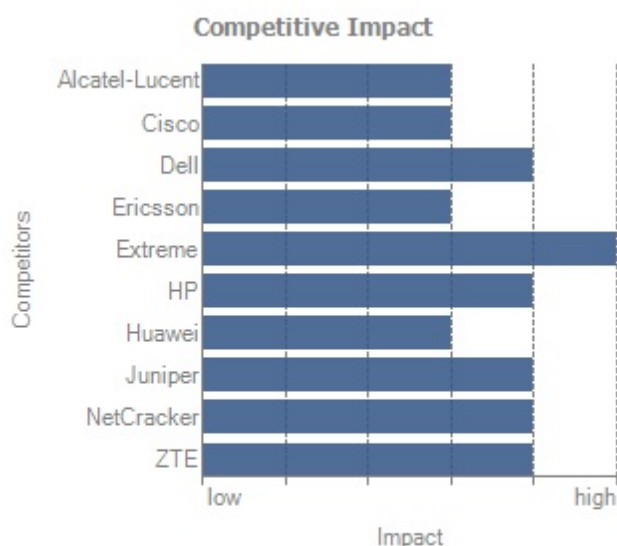
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Intelligence Report

### Quick Take



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### Competitive Positives

- The Flow Optimizer solution consists of the sFlow Collector, Flow Optimizer, ODL-based SDN controller, sFlow enabled devices and Dashboard, to address critical network performance issues.
- Provides policy-based traffic management and control to improve quality of experience for applications like attack mitigation and SLA enforcement; needed for high scale virtual network services.
- Provides real-time network visibility and policy enforcement for L2-L4 traffic flows, and facilitates improved decision making based on actual network conditions; a dashboard GUI displays performance.
- Provides REST APIs for integration with third-party cloud orchestration systems and OpenFlow v1.3 south-bound to network elements; facilitates an open solution for multi-vendor environments.
- NetIron OS 5.9 supports new SDN enhancements and OpenFlow features on Brocade's MLXe routers that in turn deliver an end-to-end solution for operators and enterprises at scale.
- Brocade's MLXe routers deliver SDN services using OpenFlow Hybrid Port mode, supporting concurrent MPLS and OpenFlow labels and non-service impacting flow

processing, which provide investment protection for existing networks.

## Competitive Concerns

- Certain SDN enhancements are dependent on NetIron OS release 5.9, which will not be available until Q3 2015; therefore some features are not available in the initial release.
  - Flow Optimizer leverages OpenFlow 1.3 and sFlow in order to retrieve performance information directly from network devices, whereas features may not be supported by third-party devices.
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## Event Summary

June 9, 2015 — Brocade announced its SDN-based Flow Optimizer application and NetIron OS 5.9 software enhancements for the MLX Series routers. Flow Optimizer provides real-time policy based management for network traffic flows and when coupled with MLXe routers, enables network operators to gain insight into network traffic, mitigate attacks and eliminate congestion. The NetIron OS 5.9 software release provides new OpenFlow features leverages the Brocade's VersaScale Packet Processor for programmable forwarding architecture.

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## Analytical Summary

### Perspective



- Positive on Brocade's Flow Optimizer SDN application, because it provides the traffic management and visibility needed by service providers and large enterprises to address the performance challenges of their virtualized network architectures. Without real-time visibility, policy detection and enforcement, traffic flow performance in virtual networks can become congested and result in degraded quality of experience. Features such as the GUI-based dashboard provide critical information to guide decisions and help operators establish policies for various traffic types. Flow Optimizer will also work with any OpenDaylight (ODL) controller, which gives operators a choice of orchestration platforms. The announcement also contains enhancements to Brocade's network OS, release 5.9., which include additional OpenFlow 1.3 features for its routers and additional flexibility by leveraging Brocade's VersaScale processors.

### Vendor Importance



- High to Brocade, because the Flow Optimizer application uses policy management to enforce various actions such as application control and network attack mitigation, thereby adding needed traffic management capabilities to its SDN solution to provide visibility into how the network is performing, which is critical as operators and large enterprises begin to make the transition from limited SDN and NFV trials and proofs of concept to broader commercial deployment. The move also better positions the vendor's routing portfolios to participate in and SDN architecture through additional OpenFlow 1.3 features that will help extract performance information and protect existing investments in the

MLXe, ICX and in a subsequent release the VDX series.

## Market Impact



- High on the transport and routing and SDN/NFV markets, because the new management capabilities provide Brocade with a stronger virtualized network solution that can track and apply preset policies to the traffic flowing in the network to better utilize network resources and provide timely information for network managers. The solution, which is built on open source technologies, supports use cases such as policy-based traffic control, attack mitigation, and port mirroring to drive analytics processes. Brocade is not alone in addressing virtual network performance, which validates the need for a comprehensive solution for service providers and large enterprises.

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## Competitive Strengths

### Competitive Positives

- The Flow Optimizer solution consists of the sFlow Collector, Flow Optimizer Application, ODL-based SDN controller, sFlow enabled devices such as the MLXe routers and ICX campus switches, and a GUI-based Dashboard to address critical network performance issues. Flow Optimizer can be leveraged through Brocade's SDN controller, or via any OpenDaylight-compliant controller, which gives network operators their choice of SDN-based operational environments.
- It provides policy-based traffic management to improve quality of experience for applications like flow-based traffic mirroring, network attack mitigation and SLA enforcement, which are needed for high scale virtual network services. As more and more enterprise and service provider networks are virtualized, operators will need to have real-time information regarding the performance of, and the demands on, their network resources; Flow Optimizer addresses both of these areas.
- It also provides network visibility and policy enforcement for L2-L4 traffic flows, facilitating improved decision making based on actual network conditions; a dashboard GUI displays performance data in real-time and/or historical formats. Most of the traffic flows in the IP network are supporting upper layer protocols and services, which are dynamic in nature and require intelligent collection and analysis to determine how well they are performing. Flow Optimizer tracks and analyzes flows, and provides multiple 200Gbps aggregated flows that can operate simultaneously, associated with applications such as video traffic, data transfers, out of policy flows (rogue or malicious) and others.
- REST APIs facilitate integration with third-party cloud orchestration systems, and OpenFlow v1.3 southbound to network elements; facilitating an open solution for multi-vendor environments. Flow Optimizer can plug and play with Brocade's SDN architecture (SDN controller) or with any ODL compliant controller. This complies with enterprise and operator preferences to leverage open source solutions that are suitable for multi-vendor deployments.
- NetIron OS 5.9 supports Brocade's MLXe routers and delivers an end-to-end solution for operators and enterprises at scale, multiple 200G aggregated flows.

- Brocade's MLXe routers deliver SDN services using OpenFlow Hybrid Port mode, which allows seamless introduction in existing customer networks by supporting concurrent MPLS and OpenFlow labels and non-service impacting flow processing. This allows for investment protection for existing networks. Additionally, the Brocade MLXe routers support the VersaScale Packet Processor, which provides programmability capabilities and ease of introducing new features and new levels of scale.
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## Competitive Weaknesses

### Competitive Concerns

- Certain SDN enhancements are dependent on NetIron OS release 5.9, which will not be available until Q3 2015. Therefore some features will not be generally available in the initial release of the application. Release 5.9 adds OpenFlow and MPLS capabilities, which enable port mirroring so as not to impact the data path performance.
  - Flow Optimizer leverages OpenFlow 1.3 and sFlow in order to retrieve performance information directly from Brocade's MLX Series network devices, including previous-generation MLX devices. However, many third-party IP routers and Ethernet switches deployed prior to the advent of network virtualization may not support sFlow and rely on CLI and/or protocols such as SNMP, etc. to extract performance information.
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## Response & Recommendations

- Brocade provided a customer reference for Flow Optimizer from the ANSP in its press release, but needs to follow up with an additional reference from a traditional telco service provider and a large enterprise. This would provide an additional level of market credibility for the application, for two key markets where significant spend is expected in the years ahead.
- Brocade should provide explicit linkage between the data collected by Flow Optimizer and one or more big data analytics engine in order to augment the capabilities which are built into the Dashboard component of the solution to deliver on capabilities needed to plot traffic patterns over longer periods of time to facilitate operator planning and investment cycles.
- Cisco should counter Brocade's Flow Optimization application by highlighting the capabilities of its Evolved Services Platform (ESP) and Evolved Programmable Network (EPN), using its WAN Automation Engine (WAE), to drive service creation, automation, orchestration and management,. Although complex, Cisco's SDN story, which touts policy enforcement and analytics functionality, is complete.
- Alcatel-Lucent should note that its recently launched Network Service Platform (NSP), which leverages its SROS, 5620 SAM, CloudBand, Nuage VSP, Motive and Analytics, combines service management and dynamic network control to deliver multi-vendor service orchestration. The NSP solution claims to include a dynamic optical transport layer (L0-L2), which is critical to supporting web-scale service provider applications.

Alcatel-Lucent should also expand messaging on the analytics capabilities of its offer in contrast to Brocade's Flow Optimizer application.

- HP and Dell, who are offering and actively promoting NFV platforms, should highlight their repertoire of VNFs and their ability to deliver policy enforcement and data analytics to help network operators better manage and predict network resource demands and trends.

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## Buyer Actions

- Brocade customers, enterprises and service providers who are using the vendor's SDN controller should quickly spin up the Flow Optimizer (as a VNF) and begin leveraging the additional performance visibility to determine the profiles of existing traffic flows. The natural follow-on would be to leverage the linkage between traffic policies, enforcement and reporting to provide network operators with the knowledge to better apply network resources to meet customer expectations.
- Since Brocade notes that its application can function with ODL compliant SDN controllers, non-Brocade customers with WAN-based networks should consider installing the vendor's Flow Optimizer VNF in their SDN environments to extract performance information from their OpenFlow and/or MPLS-based equipment.
- Service providers who are running multi-vendor WAN environments should tap Brocade's Flow Optimizer application to consolidate performance data to better visualize the traffic flow running across their infrastructures. Operators should press their WAN equipment providers to provide the ability for applications such as Flow Optimizer to extract real-time performance information from their devices using standard mechanisms such as OpenFlow 1.3, sFlow, etc.

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