

REPORT REPRINT

Arista rakes a Universal Leaf into its pile of switches

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Arista Networks has rolled out a new line of top-of-rack leaf switches that the company says can serve multiple functions – such as provisioning and telemetry, high availability, and routing – instead of just one. Marketed as Universal Leaf switches, the 7280R line allows Arista to expand its presence in digital media, general compute, IP storage and edge routing, and completes the refresh of its leaf and spine switches to Broadcom's Jericho chipset. Jericho supports routing and deep packet buffering, in addition to 10/25/40/50/100Gb Ethernet speeds.

THE 451 TAKE

Large packet buffering is vital to network support of hyperconverged storage, which is important in the target markets for Arista's Jericho spin. In digital media specifically, Arista will be a relative newcomer to a market where Ethernet is not the legacy infrastructure. And Jericho, combined with Arista's EOS and FlexRoute software, allows the company to now aim squarely at Juniper edge routers. Its traction in these markets will be noteworthy. The Jericho line may also intensify the litigious rivalry with Cisco. Cisco saw switching revenue dip 3% in its most recent quarter, so it is expected to move aggressively to grab back some wallet and market share, with Arista squarely in its sights.

CONTEXT

Santa Clara, California-based Arista is growing rapidly in datacenter switching, largely at Cisco's expense. Arista's combination of merchant silicon brawn with its own EOS operating system brains has allowed it to quickly generate revenue and market share in 10Gb Ethernet and above, and to go public 10 years after its founding. Its rapid success is the Cisco-like counterpunch to Cisco itself.

Formerly known as Arastra, Arista was founded in 2004 and launched in 2008 with datacenter switches based on merchant silicon (Fulcrum Microsystems, at the time), offering a dramatically low price per port for 10Gb Ethernet. The company was founded by Cisco renegade Andreas Bechtolsheim (a founder at Sun and Granite Systems), CTO Kenneth Duda (another Granite graduate) and Stanford professor David Cheriton. Jayshree Ullal, Cisco's former datacenter switching chief, joined as CEO in 2009.

Since then, Arista has grown steadily, and the company went public in June 2014. Arista has 3,700-plus customers, has shipped five million ports for cloud networking requirements, and has formed partnerships with Aruba, Broadcom, EMC, F5, Intel, Microsoft, NetApp, Palo Alto Networks, Red Hat, SAP, Splunk and VMware. It has also attracted Cisco lawyers, who have filed two lawsuits against the company for patent and copyright infringement. The suits are ongoing, but don't seem to be slowing Arista down: Revenue grew 35% in Q1 2016, and the company's CAGR is 56% from FY 2010 to FY 2015. Fiscal 2015 revenue was \$840m, and headcount stood at 1,200.

TECHNOLOGY

Arista leverages the ever-increasing functionality of merchant silicon, most recently Broadcom's Jericho chipset. The 7280R and the earlier announcement of the Jericho-based 7500R spine switches, combined with Arista's FlexRoute and CloudVision software, allow Arista to dive into what were heretofore ancillary markets, like core and edge routing.

FlexRoute allows Jericho to support an Internet routing table of one million routes, and routing protocols such as BGP, MPLS, Segment Routing and Ethernet VPN, as well as VXLAN routing and MACSec encryption. CloudVision is Arista's central management controller for workload orchestration and workflow automation of clouds composed of Arista gear. It includes interfaces into high-level orchestration systems from partners Microsoft, VMware, Hewlett Packard Enterprise, Dell, Red Hat, Rackspace, F5, Nuage Networks and Palo Alto Networks.

Jericho also supports deep buffers for lossless data transmission in storage, high-performance computing and other demanding workloads, like digital media, another new market for Arista. With Jericho, FlexRoute and CloudVision, Arista is becoming less of a one-trick datacenter switching pony and more of an IT networking company.

At the heart of Arista's differentiation is its EOS operating system. EOS is based on a Linux kernel, and is modular, programmable and extensible through an SDK for distributed application development. The operating system supports a system database for storing system state and NetDB, a network-wide state repository designed to increase scalability, network efficiency and resilience. NetDB is the guts of FlexRoute and CloudVision. It allows FlexRoute to support the one million routes and 100,000 tunnels for increased cloud scale, and it aggregates the network state of all EOS devices to a common point: CloudVision. From there, NetDB can stream network-wide telemetry data to augment network operations visibility and historical analytics.

COMPETITION

It started out as Cisco, and continues to be Cisco in datacenter networking. But with the Jericho refresh, Juniper is now on the radar. Arista also battles Dell and the datacenter switches and routers it obtained from the Force10 acquisition in 2011, as well as Brocade with its Ethernet/IP arsenal from the Foundry Networks acquisition of 2008. Arista also faces competition from disaggregated white-box and bare-metal switches offered by Juniper, Dell, HPE, ODMs and the Open Compute Project, running disaggregated network operating system (NOS) software from the likes of Cumulus Networks and Pica8.

SWOT ANALYSIS

STRENGTHS

Arista has built a solid and growing business in datacenter switching from merchant silicon and a modular operating system. It is a leading vendor of 10/25/40/50/100Gb switches for the datacenter and cloud.

WEAKNESSES

Competing with Cisco is never easy, especially when you steal market share from the giant. Cisco responds aggressively, through technology, pricing, marketing and lawsuits.

OPPORTUNITIES

Datacenter and cloud networking are beginning new upgrade phases with the advent of 25/50Gb and 100Gb Ethernet. On the horizon is 400Gb Ethernet. Billions of devices are connecting to the internet annually. Growth will not be a problem for a while.

THREATS

The disaggregated hardware and software trend favored by cloud giants could pose a threat to brand-name vendors that tightly couple NOS software and switch hardware. Overall, the datacenter and cloud networking field is crowded, and competition is fierce.