REPORT REPRINT

Pluribus reintroduces SDN software as Adaptive Cloud Fabric

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451 Research

Pluribus Networks is reminding the industry that it's a software-defined networking vendor, first and foremost. After a year of emphasizing the network analytics capabilities of its Netvisor SDN fabric software, Pluribus is back to touting the primary use case for Netvisor: cloud networking.

Pluribus' Adaptive Cloud Fabric, based on its Netvisor network OS, is designed for configuring a virtualized distributed network architecture for the datacenter. The controller-less fabric distributes intelligence and, through its inherent analytics and telemetry, provides pervasive visibility of network traffic.

THE 451 TAKE

Pluribus' Netvisor has always been a cloud-networking fabric, despite the year-long emphasis on network analytics and performance management. Embedded analytics is a byproduct of Netvisor and one of its many features, with service insertion, micro-segmentation, automation and virtual switching among them. Reintroducing Netvisor through its Adaptive Cloud Fabric use case is a wise move for Pluribus – the emphasis on network analytics over the past year may have prompted potential customers to overlook its broader applicability in fabric networking. Adaptive Cloud Fabric should (re)open some eyes.

CONTEXT

According to 451 Research's Voice of the Enterprise survey, Cloud: Workloads and Key Projects 2016, cloud usage is widespread in enterprise technology deployments today, and expectations are that a majority of all workloads will be running in some form of public or private cloud by 2018.

Of our survey respondents, 60% report broad or initial implementation of cloud applications in production. And cloud adoption for several key workload categories, such as data and analytics, email and collaborative, and business applications, is robust. Also, events such as mergers, acquisitions, divestitures, hardware refreshes, software upgrades and datacenter-capacity expansions are common triggers for increased usage of cloud.

Palo Alto, California-based Pluribus was founded in 2010 to provide software-defined server/switches and network computing appliances for analytics and cloud orchestration, powered by a hypervisor operating system. The company, and many others in the SDN realm, saw a need to have the datacenter's various components – multivendor servers, switches, hypervisors, storage arrays, applications and operating systems – coordinated and controlled consistently.

Through the company's Netvisor OS, two or more of these server/switch combinations can create a virtual datacenter fabric with software-based distributed control. Over the years, Pluribus and other SDN datacenter fabric startups (Big Switch Networks, Midokura) honed their focus on the analytics use case for SDN. But Pluribus is now reverting to its original focus on software-defined fabric networking.

Pluribus has raised $118m in five rounds of funding from Temasek Holdings, NEA, Menlo Ventures and AME Cloud Ventures. The company is led by Kumar Srikantan, formerly vice president and general manager of hardware engineering for the Enterprise Networking Business of Cisco. It was founded by former Sun Microsystems engineers Robert Drost and Sunay Tripathi, COO and CTO, respectively, as well as VP of product engineering Ken Yang.

Pluribus has about 150+ employees, and 100+ enterprise customers in verticals including computing, banking, electronics, electricity and insurance. It says its typical end-user deal is worth roughly $100,000, but a handful of customers have spent millions each. 451 Research estimates the company's 2016 revenue at about $30m.

PRODUCTS

The Adaptive Cloud Fabric operates without a controller. It runs on Open Compute Project (OCP) and Open Network Install Environment (ONIE) hardware-compliant switches, including devices from Dell EMC, Edgecore and Pluribus' own Freedom series. It can be deployed across the datacenter, or targeted to specific racks, pods, server farms or hyper-converged infrastructure, such as Nutanix, vSAN and VxRail.

Multiple geographically distributed datacenters can be interconnected into a fabric over any WAN or dark fiber. The architecture is designed to deliver multi-terabit capacity, and support millions of concurrent connections for private or public clouds, hybrid IT and network-as-a-service delivery.

The foundation of Adaptive Cloud Fabric is Pluribus' Netvisor software. Netvisor is a virtualized NOS that provides layer 2 and layer 3 forwarding and distributed fabric intelligence, and virtualizes the switch hardware, similar to how VMware virtualizes a bare metal server. A single switch can instantiate multiple per-tenant virtual switches, each with integrated telemetry, policies, state and virtualized network services and functions. Each virtual switch can be accessed and managed independently.

Netvisor vPort technology collects and updates all switch-to-switch communications, configuration, policies and state information across the fabric, as well as the location, identity, policy and history for each end point – including fabric-attached VMware server clusters in private or public clouds (such as AWS and Azure).

The software shares state status to all member devices in real time, eliminating network broadcasts. Integration with VMware vCenter enables orchestration of physical and virtual resources, and workloads from a single management pane. APIs support integration with automation tools such as Ansible, and programming languages such as Python.

Netvisor telemetry generates metadata on individual TCP connections, east/west and north/south traffic flows, and virtualized workloads for network and application performance monitoring. Netvisor 2.5.3 with Adaptive Cloud Fabric is available now. The software is licensed as perpetual, or subscription on a per-switch basis.

COMPETITION

Pluribus competes with Big Switch Networks, Arista and Cisco in SDN-enabled fabric networking and analytics. Big Switch's Big Cloud Fabric is a controller-based system that runs on white-box switches and allows users to build cloud 'pods' where racks of servers, switches and applications can be grouped logically to serve a specific function, such as OpenStack and VMware private clouds, Hadoop big-data clusters, or a virtual desktop infrastructure.

It is intended to ease provisioning and management of physical, virtual and containerized workloads, or a combination of such workloads, such as NFV, high-performance computing, big data and software-defined-storage deployments.

Big Switch has a separate SDN offering for analytics: Big Monitoring Fabric. BMF is network packet-broker controller software that runs on bare-metal and white-box switches equipped with Big Switch's Switch Light operating system. It is designed as a visibility fabric that enables enterprise-wide monitoring as well as multi-tenancy for multiple IT teams (NetOps, DevOps, etc.) to simultaneously perform network monitoring using in-line or out-of-band tools and policies.

Arista's CloudVision is a central management system 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. Arista recently added streaming state analytics and telemetry to CloudVision.

CloudVision Telemetry provides a way to capture, stream, log and analyze a comprehensive set of switch states to identify trends and correlate any changes with problems. Cisco's Application Centric Infrastructure (ACI) is a controller-based application policy administrator and enforcer that shares service profiles with the Cisco network so the network can configure itself to best accommodate the application. The Cisco Nexus 9000 switches are equipped with ASICs that enable them to function as the physical underlay for the ACI fabric.

Cisco recently rolled out Tetration Analytics, a hardware/software system for high-capacity network-flow capture, recording, storing and analysis in a large datacenter. The latest version of Tetration includes more comprehensive flow sensor support, additional analytics aimed at understanding application segmentation, the addition of traffic enforcement, and plans for a smaller appliance and a virtual appliance that can run in a public cloud.

SWOT ANALYSIS

STRENGTHS
Pluribus has more than $100m in funding, a strong pedigree and 100+ customers. Clearly, the venture community saw something in it.

WEAKNESSES
Pluribus is a small company going up against datacenter and cloud networking stalwarts like Cisco and Arista. If its message isn't drowned out by these behemoths, it could be clearer – a year-long emphasis on network analytics diluted Netvisor's core use case.

OPPORTUNITIES
The software-defined datacenter is a huge market for many IT players – servers, storage, networking, virtualization and applications. Customer appetite for uniform operation, orchestration and efficiency will not abate.

THREATS
In addition to taking on heavyweights, Pluribus will be going up against many other combatants in SDN fabric networking for the datacenter and cloud. Precision in messaging, differentiation and execution will be key.