VOLTA Networks

Data Sheet

VEVRE Software Release 19.3

Volta Networks has transformed the router with the first cloud-based control plane, providing unprecedented scale in processing and virtual routing. The Volta Elastic Virtual Routing Engine (VEVRE) can run on any public, private or hybrid cloud and works with a broad range of open networking devices such as white box switches. This combination of a disaggregated and elastic control plane with open networking devices reduces cost by an order of magnitude compared to legacy routers.

The VEVRE consists of three major elements:

The **Volta Cluster** is the set of virtual machines necessary to operate the system, running on a dedicated container management system. The cloud infrastructure for the Volta cluster also hosts the Virtual Route Processors. The system can run on any public, private, or hybrid cloud infrastructure. It is a turnkey system with everything needed to administer resources and dependencies to manage the scale out for many independent processes. Network operators run only the processes that their customers or users need while resources are dynamically allocated.

The **Virtual Router Processor** (VRP) is a set of containers running the network protocols and control plane services (e.g. IS-IS, BGP etc.) and operating as a distinct administrative domain. VRPs provide the same functionality as a routing engine or processors.

The **Volta Agent** (vAgent) is software which runs on the operating system of a networking device and provides for connection to the VRP as well as local autonomous control. The vAgent runs as an application on the OS and controls the switching ASIC through its SDK.

Volta supports up to 255 separate virtual routers on a single device such as a 1U white box switch. In this multi-tenant scenario, each virtual router is a separate set of processes in the cloud and can be administered independently. This significantly simplifies service creation and provisioning by having a separate configuration file for every customer. This all leads to faster service delivery, as well reducing errors.

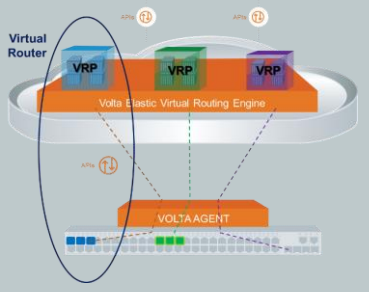
Management

Volta's YANG model service library powered by an API complies with all the key standards for management, administration and network orchestration (MANO) integration. The API provides a single point of connection for optimizing automation as compared to appliance-based routing solutions that still require network operators to manage every single box. This approach allows the network operator to manage at a service level rather than building the service via low level CLI configuration.

Cloud based virtual routing platform reduces total cost of ownership by 90% compared to legacy routers with full support for standard routing protocols and complete interoperability

Platform built for carrier automation with support for key standards including gRPC, YANG and NETCONF

Delivers unprecedented scale with up to 255 virtual routers per switch



The vAgent works in tandem with a VRP to create Virtual Routers. Up to 255 VRs can be supported on a single device.

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Customization is simplified as business domain experts can create a network solution by translating their knowledge into a high-level model. The system translates this into low level network service states. Volta created an initial set of network services which can be used as is or customized according to customer needs.

Hardware

Volta can support any network platform that is open to third party developers. The vAgent actively manages the switching ASIC and we have support for major ASIC vendors including Broadcom. Only Open Network Install Environment (ONIE) is needed on the white box switch for Zero Touch Provisioning.

Major Features:

Category	Specification
L3	IPv4 and IPv6 VRF / VRF-lite PBR
Routing	OSPFv2, OSPFv3 IS-IS BGP-4, MP-BGP, BGP LU BFD ECMP Static Routes
L2	LAG LACP
Security	ACL
Management	gRPC API SNMP NETCONF/YANG Streaming Telemetry Hardware ZTP Syslog CLI
Network Services	BGP/MPLS L3VPN PW (LDP-based) VPLS (LDP-based)