

Voltaire® Vantage™ 6048

10 Gigabit Ethernet Cloud Top-of-Rack Switch



Scaling-Out Data Centers Using 10 Gigabit Ethernet

The Voltaire Vantage™ 6048 switch is a high performance Layer 2/3 10 Gigabit Ethernet top-of-rack switch optimized for enterprise data center and cloud computing environments. With the industry's highest density and converged Ethernet capabilities, the Voltaire Vantage 6048 enables new levels of efficiency, scalability and real-time application performance, while at the same time consolidating multiple/redundant network tiers and significantly reducing infrastructure expenses.

With 48 ports of 10GbE line-rate connectivity and 960 Gb/s non-blocking switching throughput, the Voltaire Vantage 6048 switch features the most comprehensive Layer 2 protocol stack, enabling the industry's most robust and advanced 10GbE fabric.

Designed for the Converged Data Center

The Voltaire Vantage 6048 is equipped with the most advanced congestion management and flow control protocols to enable converged data centers. The switch combines FCoE-aware classification and prioritization together with per port/priority buffer management to run both LAN and storage traffic concurrently over the shared fabric. Additional implementation of advanced standards such as QCN (802.1Qau), PFC (802.1Qbb), and ETS (802.1Qaz) provide a complete flow control solution enabling the consolidated fabric to serve each application in an isolated and deterministic manner.

10GbE Scalability

With 48 10GbE ports, the Voltaire Vantage 6048 together with the Voltaire Vantage 8500 Layer 2 core switch allows users to scale out from small and medium installations all the way to multi-thousand server installations with large Layer 2 domains in a horizontal scale-out architecture. The product's large MAC and Multicast address tables ensure that scalability is not impaired by a lack of addressing resources.

Taking Virtual Machine Connectivity to the Next Level

Together with Voltaire Unified Fabric Manager™ (UFM™) software, the Voltaire Vantage 6048 supports and controls the flow of traffic in virtual machine server environments. UFM orchestrates connectivity during VM migration and ensures that traffic flow for each VM is shaped, rate limited and policed throughout the entire fabric. These traffic control capabilities can be automated on a fabric-wide basis, enabling VM mobility without any human intervention in the configuration of the fabric.

Top of the Line Manageability, Security & QoS

The Voltaire Vantage 6048 switch is designed to adhere to the most stringent data center security and manageability requirements. The switch security feature set includes MAC-based port security filtering for attack prevention together with ACL with a permit/deny action engine. This suite of capabilities facilitates data center service assurance in the most scalable and mission critical environments.

The switch is also equipped with the latest logging, reporting and monitoring capabilities that, together with its AAA services and configuration tools, enable simple and auditable maintenance and management.



- **High performance and port density** with linear scalability and non-blocking 10GbE data center connectivity
- **Low power** 10GbE data center switch with as low as 6.3 watts per port
- **Consolidation** enabler with advanced IEEE Data Center Bridging (DCB) standard features and FCoE support
- **Support for virtual machines** with isolation and fabric-wide QoS per virtual machine
- **Enhanced Security & QoS** with an enhanced selection of best practice attack prevention and port access control rule engine.

TECHNICAL SPECIFICATIONS

Voltaire Vantage 6048

- 48x SFP+ ports that operate at 10GbE or Gigabit speeds
- Port-to-port latency: 2.3 microseconds
- 960 Gb/s non-blocking switching throughput (full duplex)
- Redundant power units

Management

- Static assignment of IP addresses
- Dynamic assignment of IP addresses (DHCP/BootP)
- Dual software images/boot code update
- Configuration uploads and downloads
- Software upgrades via TFTP
- SNMP v1, v2, v3
- Radius
- Tacacs+
- Multi-session Telnet
- Industry-standard CLI
- IPv6 Management support
- Port Mirroring

Security

- MAC-based port security
- MAC-based port security by number of MACs
- 802.1x single/multiple host and full NAP support
- ACL with permit/deny actions
- Wire Rate speed filtering: allow and deny

L2/L3 and Scaling

- 16K Routing entries
- 32K MAC table
- 4K MULTICAST groups
- 3K ACL

VLAN Support

- GVRP support for VLANs GARP
- MAC Based VLANs
- IP Subnet Based VLANs
- Protocol Based VLANs
- PVE
- Management VLAN
- Subnet/MAC VLAN

VLAN Mirroring

- Per Port RX/TX/Both
- Per VLAN

Routing (Layer 3)

- Static Routes
- ARP entries
- ICMP
- ECMP

Data Center Features

- 802.1Qau congestion management
 - ▶ QCN, queue depth feedback scheme to servers to indicate congestion
 - ▶ Proprietary extensions
- 802.1Qbb priority flow
 - ▶ Cut-through mode of operation
 - ▶ Per port/priority
- FcoE support
 - ▶ FIP snooping
 - ▶ FCoE-aware classification and prioritization
 - ▶ ACL support
- Buffer management
 - ▶ Per port / priority guarantees
 - ▶ Per priority shared pool for large burst performance
 - ▶ Per port/priority allocation of shared pools
- DCBX full support (802.1az)
- L3 Routing with ECMP up to 8 alternative routes

QoS Capabilities

- Priority per port
- Policy based QoS assignment
- Trusted/Untrusted Port
- 802.1p/DSCP priority
- Egress queue assignment
- Marking and remarking of DSCP
- Traffic Shaping
- Policer/ Aggregate Policer

Rate Limiting/Traffic Policing

- Unknown Unicast rate limiting
- Multicast/ Broadcast Rate limiting
- Ingress metering
- Egress shaping
- Per flow rate limiting

Port Features

- Port enable & disable
- Mode auto-neg/manual setting
- Auto-negotiation advertisement
- Auto-MDI/MDIX
- Flow control (802.3x)
- Optical transceiver diagnostics
- Manual port control and identification
- Jumbo frames up to 9 Kbytes
- 802.3ad Link Aggregation/LACP
- Green Ethernet
- FE/GE/XG ports

Spanning Tree

- IEEE 802.1D Spanning Tree
- Spanning Tree –fast port
- Rapid spanning tree (IEEE802.1w)
- Multiple spanning trees (IEEE 802.1s)
- STP Root Guard
- BPDU Filtering
- Loopback detection

L2 Multicast support

- L2 Multicast Forwarding and Filtering
- Static multicast groups up to 4K
- IGMP Snooping v1/v2/v3
- Fast, Immediate Leave Support
- MLD v1/v2

Logging/Reporting/Monitoring

- SNMP
- Traceroute
- DNS Client
- 802.1ab
- Syslog
- Switch auditing
- Traps
- RMON

Physical Characteristics

- 17.3" wide, 23.3" deep, 1 RU high
- Weight 12kg (25.6 lb)

Environmental

- Ambient temperature: 0° to 40° C
- Humidity: 10 to 90%, non-condensing
- Altitude: 0 to 10000 ft (3050m)