

# **CISCO CATALYST4055-X Switch WS-C4500X-16SFP+**



- **Performance and scalability**

1. 800-Gbps switching capacity with up to 250 Mpps of throughput
2. External USB and SD card support for flexible storage options
3. 10/100/1000 RJ-45 console and management port
4. IPv6 support in hardware, providing wired-network-rate forwarding for IPv6 networks and support for dual stack with innovative resource utilization
5. Dynamic hardware forwarding-table allocations for ease of IPv4-to-IPv6 migration
6. Scalable routing (IPv4, IPv6, and multicast) tables, Layer 2 tables, and ACL and quality of service (QoS) entries to make use of eight queues per port and comprehensive security policies per port

- **Infrastructure services**

1. Cisco IOS XE Software, the modular open application platform for virtualized borderless services
2. Maximum resiliency with redundant components, Nonstop Forwarding/Stateful Switchover (NSF/SSO), and In-Service Software Upgrade (ISSU) support in a VSS enabled system
3. Network virtualization through Multi-VRF technology for Layer 3 segmentation
4. Automation through Embedded Event Manager (EEM), Cisco Smart Call Home, AutoQoS, and Auto SmartPorts for fast provisioning, diagnosis, and reporting

- **Cisco Borderless Networks services**

1. Optimized application performance through deep visibility with Flexible NetFlow supporting rich Layer 2/3/4 information (MAC, VLAN, TCP flags) and synthetic traffic monitoring with IP service-level agreement (SLA)
2. Medianet capabilities to simplify video quality of service, monitoring, and security. In addition, multicast features such as Protocol Independent Multicast (PIM) and Source-Specific Multicast (SSM) provide enterprise customers with the additional scalability to support multimedia applications

- **Investment protection and reduced TCO**

Cisco Catalyst 4500-X Series eliminates the need for standalone solutions by integrating many network services. Customers can lower the total cost of ownership while streamlining management and accelerating deployment time. Integrated network services available on Cisco Catalyst 4500-X Series include:

1. Application visibility and control (Flexible NetFlow, Cisco IOS Embedded Event Manager)
2. Security with Cisco TrustSec<sup>1</sup>
3. Troubleshooting video or any User Datagram Protocol-based flows (Mediatrace)
4. Video network readiness assessment (built-in traffic simulator with IP SLA Video Operation)
5. Ability to run third-party applications (Wireshark)

### **Operational Manageability**

1. Two Cisco Catalyst 4500-X Series Switches share a single point of management, single gateway IP address, and single routing instance.
2. Eliminates the dependence on First Hop Redundancy Protocols (FHRP) and Spanning Tree Protocol.

### **Scales to 1.6 Tbps**

1. Scales system bandwidth capacity to 1.6 Tbps by activating all available bandwidth across redundant Cisco Catalyst 4500-X Series Switches.
2. Provides up to 80 ports of 10 Gigabit Ethernet per system.

### **Enhanced Application Visibility with Flexible NetFlow**

Cisco IOS Flexible NetFlow is the next generation in flow monitoring technology, allowing optimization of the network infrastructure resources, reducing operation costs, and improving capacity planning and security incident detection with increased flexibility and scalability. The Cisco Catalyst 4500-X Series provides 128K Flexible NetFlow entries. Based on a custom-built ASIC, Cisco Catalyst 4500-X Series delivers unprecedented flexibility and comprehensive flow visibility extending from Layer 2 (MAC, VLAN) to Layer 4 (TCP, UDP flags, and so on).

The flow data collected by Flexible NetFlow can be exported to an external collector for analysis and reporting or tracked by EEM. The Cisco Catalyst 4500-X Series enables powerful on-box and customizable event correlation and policy actions with EEM. This allows the switches to trigger customized event alarms or policy actions when the predefined condition is met. With no external appliance required, customers are able to use existing infrastructure to perform traffic monitoring, making traffic analysis economical even on large IP networks.

Additional details on Cisco Flexible NetFlow are available at: <http://www.cisco.com/go/fnf>.

### **Features at a Glance**

1. **Cisco IOS XE Software IP Base:** Includes all Layer 2 features and some basic Layer 3 features.
2. **Cisco IOS XE Software Enterprise Services:** Upgradable with a Software Activation License (SAL); supports full Layer 3 protocols and advanced features such as complete routing scalability, Border Gateway Protocol (BGP), Virtual Routing and Forwarding, Policy-Based Routing, and so on.

These features can be enabled using the software-licensing mechanism. For details about software licensing, see “Licensing” section later in this document or visit <http://www.cisco.com/go/sa>.

## **Industry Standards**

- Ethernet: IEEE 802.3
- 10 Gigabit Ethernet: IEEE 802.3ae
- IEEE 802.1D Spanning Tree Protocol
- IEEE 802.1w Rapid Reconfiguration of Spanning Tree
- IEEE 802.1s Multiple VLAN Instances of Spanning Tree
- IEEE 802.3ad LACP
- IEEE 802.1p CoS Prioritization
- IEEE 802.1Q VLAN
- IEEE 802.1X User Authentication
- IEEE 802.1x-Rev
- RMON I and II standards
- USGv6 and IPv6 Gold Logo certified

## **Supported Pluggable**

For details about the different optical modules and the minimum Cisco IOS Software release required for each of the supported optical modules, visit:

Note: SFP-10G-ZR modules are not supported on ports 1 to 32 (or 1 to 16) in the back-to-front airflow configuration. They are supported on the uplink module ports instead. In the back-to-front airflow configuration, limit usage of ZR optics to the uplink module only.

## **Software Requirements**

The Cisco Catalyst 4500-X Series is supported in Cisco IOS Software with minimum Cisco IOS XE Software Release 3.3.0SG. For VSS capability, minimum software requirement is Cisco IOS XE Software Release 3.4.0SG.