



# Why Migrate from Cisco Catalyst 4000 Series to Cisco Catalyst 4500 E-Series

## Why Migrate?

The Cisco® Catalyst® 4000 Series Switches (Cisco Catalyst 4003 and 4006 Switches) with Layer 2 Cisco Catalyst OS-based supervisor engines and the Layer 3 services blade were state-of-the-art at introduction, but much has changed since the first Cisco Catalyst 4003 was deployed in 1998. With these products at end of sale, it is time to consider a platform that supports today's security, quality-of-service (QoS), and Power over Ethernet (PoE) requirements. The Cisco Catalyst 4500 E-Series is ideally suited for converged voice, video, and data networks; it has features and performance to handle the bandwidth, security, resiliency and performance requirements of the future.

## Cisco Catalyst 4500 E-Series Advantages

The Cisco Catalyst 4500 E-Series Switch employs a centralized architecture where each packet is transported to the active supervisor to be switched. The centralized architecture helps ensure consistent high performance while protecting the customer's investment in line cards. The Cisco Catalyst 4500 E-Series supports Cisco Catalyst 4000 and 4500 line cards introduced since 1999. Custom-designed Application-Specific Integrated Circuits (ASICs) and Ternary Content Addressable Memory (TCAM) are the keys to feature-rich line-rate performance. The Cisco Catalyst 4500 E-Series Switch with the Cisco Catalyst 4500 Series Supervisor Engine 6-E uses fourth-generation TCAMs to process Layer 3 routing independently from wire-speed intelligent services such as QoS and security. The architecture is designed so that each function and feature has a large amount of dedicated TCAM space, ensuring high performance.

**Figure 1. Catalyst 4000 Series Linecards Work in the Catalyst 4500**



## Investment Protection

Critical components of the Cisco Catalyst 4500 E-Series Switch are upgradable and field-replaceable, including line cards, supervisor engines, power supplies, and fans. In addition Cisco Catalyst 4000 Series line cards shipped in 1999 as Layer 2 only are fully compatible with the Cisco Catalyst 4500 E-Series today and are fully upgradable to Layer 3 switching.

**Figure 2. Supervisor Engine 6-E**



## Cisco Catalyst 4500 E-Series Supervisor Engine 6-E

This supervisor engine features the new CenterFlex technology, supports 24 Gigabits per second per linecard slot and 8 queues per port, includes larger TCAM resources for high feature capacity, and provides support for IPv6 in hardware.

## High Availability

The most complex components of the Cisco Catalyst 4500 E-Series support redundancy. This includes 1+1 supervisor engines, power supplies, and fans. HA is also supported in software (in following release). Supervisor Non-Stop Forwarding (NSF) with Stateful Switchover (SSO) lets the switch pass traffic during a failover, helping ensure that phone calls do not drop. In-Service Software Upgrade (ISSU) allows upgrade or downgrade of complete Cisco IOS® Software images with minimal impact.

## Network Security

The Cisco Catalyst 4500 E-Series provides advanced detection and mitigation from Layer 2 and Layer 3 network attacks with no degradation in switching performance.

- **802.1x:** Used to identify, authenticate, and authorize appropriate network access. The Cisco Catalyst 4500 Series also supports extensions for dynamic VLAN assignment.
- **Port Security, Dynamic ARP Inspection, DHCP Snooping, and IP Source Guard:** These features help prevent denial of service and other insidious unauthorized network use such as man-in-the-middle attacks, which are used to steal business and employee data without detection.
- **Network Access Control (NAC):** Used to detect the security posture of an attached device before access is granted to the network.
- **PACL, RAACL, VAACL:** Used for access control on L2/L3 ports and VLANs.



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## Convergence

A converged voice, video, and data network plays a critical part in helping an organization gain a competitive advantage through increased productivity, organizational flexibility, and reduced operational costs.

- QoS (shaping, sharing, Layer 2–4 classification per port, ingress/egress policing, guaranteed bandwidth, dynamic buffer limiting [DBL], 8-TX queues per port, strict priority queue on every port): These combined QoS features help ensure critical traffic can flow during times of congestion.
- 15.4W per port on every port for Power over Ethernet.

## Performance

When it comes to performance of centralized systems for critical networking needs, the Cisco Catalyst 4500 E-Series is superior. With the arrival of the Cisco Catalyst 4500 E-Series Supervisor Engine 6-E with CenterFlex technology, the Cisco Catalyst 4500 E-Series provides 320 Gbps and 250 Mpps in a single chassis. The new supervisor engine makes migrating to 10 Gigabit Ethernet easy by supporting 4 x Gigabit Ethernet Small Form-Factor Pluggable (SFP) links via the TwinGig module or 2 x 10 Gigabit Ethernet X2 form factor optics. Make your network ready for the future today with the Cisco Systems Catalyst 4500 E-Series.

## Manageability

The Cisco Catalyst 4500 E-Series makes provisioning and monitoring simple through a variety of tools.

- **Smartports:** Provide prepackaged configurations in a single command.
- **Auto QoS:** Automatically applies appropriate port settings when IP phones are attached.

## Cisco Catalyst 4500 E-Series Benefits

- **High performance:** Predictable high performance (IPv4/IPv6) with concurrently enabled services (QoS, Security, Multicast).
- **Increased control and flexibility:** Optimize performance of voice, video, and data applications over a unified network.
- **High availability and security:** Minimize planned and unplanned downtime, delivering business-critical applications securely and uninterrupted.
- **Scalable services capacity:** Ample resources to enable new services today and in the future.
- **IPv4 to IPv6 migration:** Optimized to enable IPv4 and IPv6 simultaneously, providing for a smooth migration.
- **Superior investment protection:** Maximum backward and forward compatibility. Mix and match new and classic linecards without performance degradation.