Deep-Buffer Routing with the Cisco 8000 Series Routers

Benefits

- **Accelerate AI workload performance** by providing deep buffering that prevents packet loss during congestion, helping ensure smooth, low-latency communication across distributed AI clusters.

- **Enhance network scalability** by delivering 51.2 Tbps with 64 ports of 800 GE in a fixed 3RU platform, and 28.8 Tbps with 36 ports of 800 GE in a modular line card. OSFP and QSFP-DD options allow seamless scale across architectures connecting multiple data centers.

- **Optimize power consumption** with industry-leading power efficiency, enabling customers to scale AI infrastructure sustainably in environments with limited power availability.

- **Secure data in transit** through integrated inline MACsec encryption, protecting sensitive AI workloads without compromising performance.

- **Increase operational flexibility** by supporting multiple network operating systems, including Cisco IOS® XR and open-source SONiC, enabling tailored network deployments to meet evolving needs.

Product overview

Unmatched scale and efficiency for AI infrastructure

The Cisco® 8000 Series deep-buffer routers are power-optimized systems designed to meet the evolving demands of distributed AI workloads. With a massive 51.2-Tbps capacity powered by the Cisco Silicon One™ P200 chip, they deliver industry-leading throughput while maintaining exceptional power efficiency. The deep-buffer architecture enables seamless, low-latency connectivity across geographically dispersed AI clusters, helping ensure consistent performance even during traffic surges.

Built for flexibility, these deep-buffer routers support multiple network operating systems including Cisco IOS XR and open-source SONiC, allowing organizations to tailor their networks to specific needs. Integrated security features like inline MACsec protect data in transit without compromising latency. Available as 3RU fixed routers as well as modular line cards, these deep-buffer routers provide an ideal foundation for next-generation AI infrastructure that demands high bandwidth, scalability, security, and operational efficiency.
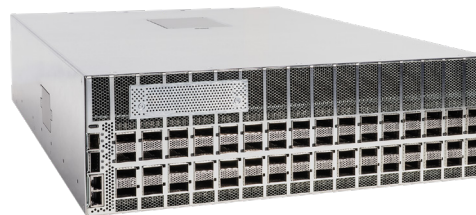
8223-64E-M 3RU fixed router
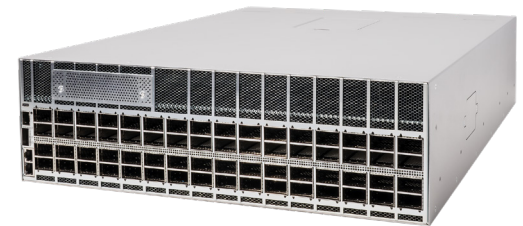
8223-64EF-M 3RU fixed router
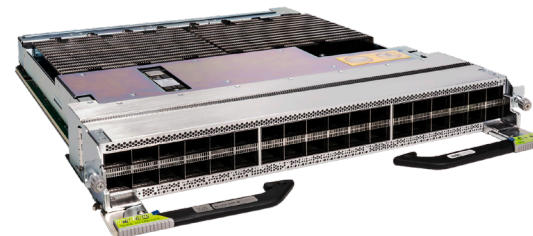
88-LC2-36EF-M Line card

Learn more

Discover how Cisco deep-buffer routers based on the Silicon One P200 can transform your AI infrastructure with unmatched scalability, power efficiency, and security. Learn more about the **Cisco 8000 Series Routers** and start scaling your workloads today.

What it does

Delivering scalable, high-performance routing with advanced flexibility for data center interconnect (including scale across), core, and peering

Massive throughput: Supports up to 51.2-Tbps capacity in a 3-Rack-Unit (3RU) fixed router, and 28.8-Tbps capacity in a modular line card, scaling up to an 18-slot chassis with 518.4-Tbps capacity. Both are powered by a Cisco Silicon One P200 processor, enabling unmatched scale for high-bandwidth applications.

Deep buffer architecture: Minimizes packet loss and latency during traffic surges, helping ensure consistent performance in demanding environments.

Multi-OS support: Supports Cisco IOS XR and open-source SONiC, offering operational flexibility and customization to meet diverse network needs.

Integrated security: Inline MACsec encryption protects data in transit without impacting latency, enhancing network security.

Compact and scalable design: Available as a 3RU fixed router as well as a modular line card, simplifying deployment and scaling and optimizing space and power efficiency.

These capabilities position the Cisco deep-buffer routers ahead of competitors by combining industry-leading scale, low latency, flexible software options, and integrated security, enabling customers to build resilient, high-performance networks.