

Juniper Networks E-series Broadband Services Routing platforms

The Juniper Networks E-series platform is a central component of the broadband edge, with a proven architecture that has been deployed in many different roles in the world's largest broadband networks, the E-series family is capable of providing multiple services including broadband remote access server, broadband video services, dedicated access, 802.11 wireless subscriber management, voice over IP, internet access, security services, network address translation, and others - on a single platform. The modular architecture of the E-series ensures that Service Provider need only deploy the number and types of routers that fit their needs and budget, while they retain the ability to add capacity and services as their needs grow.

Carrier-class architecture allows Juniper Networks to combine Broadband Remote Access Server (B-RAS) and dedicated access capabilities (T1/E1 and above) on a single, integrated platform. With an agnostic approach to access technologies featuring support for IP, ATM, and Frame Relay, the E-series routers provide a highly reliable, scalable, and flexible routing platform for deploying IP services. This flexibility lowers ongoing operational costs by enabling rapid deployment of new edge services from a single router platform and also provides the ability to offer new services in the future.

E-series platforms provide the port variety, performance, and flexible IP service capabilities to meet the evolving demands of service providers. The ability to combine a wide range of high-performance interfaces ranging from DS-0 through OC-48c/STM-16 with a consistent feature set and predictable performance enables the E-series to satisfy critical applications at the edge, including voice, video and data.

Hardware-based Multiprotocol Label Switching (MPLS) and fine-grained Quality of Service (QoS) features ensure the ability to support a variety of traffic types ranging from the best-effort requirements of IP traffic to the time-sensitive requirements of legacy ATM, and Frame Relay traffic.

Key features

- Wide range of "application-optimized" platforms
- Cross-platform Feature Consistency via JUNOS
- High-performance Architecture
- Comprehensive Subscriber Management Features
- Granular QoS with low latency and jitter performance
- Hardware-based IPv6 performance
- High-availability Hardware
- High-availability Software
- Superior Packet Processing via Programmable ASIC-based Packet-forwarding Engine (PFE)
- Wide Range of Interfaces



ERX-1440 Broadband Services Router

The ERX-1440 Broadband Services Router is the highest performance routing platform in the E-series product line and is targeted at the largest edge environments. Each 14-slot router contains a 40 Gbps switch fabric / route processor (SRP) with optional SRP redundancy for high availability and 12 slots dedicated to line modules. The ERX-1440 utilizes the same ASIC-based line modules and I/Os from the E-series product line and supports up to OC-48c/STM-16 and Gigabit Ethernet speeds. The M120 Multiservice Edge Router is the newest addition to the industry-leading Juniper Networks M-series product family. The M120 delivers support for 128 Gigabit Ethernet subscriber ports, with 10 Gigabit Ethernet or OC 192 uplink capabilities in an affordable, compact form factor. Ideal for supporting high-bandwidth converged edge routing applications, the M120 platform is designed to facilitate service aggregation for the multiplay needs of both service providers and enterprise users. The M120 extends a cost-effective,

Ethernet-optimized infrastructure with 10 gigabit networking capabilities to the network edge. Capable of supporting MPLS services at Layers 2 and 3, including Layer 3 VPNs, the M120 is designed to deliver superior redundancy and facilitate the transport of legacy Frame Relay and ATM traffic over high-bandwidth Ethernet links.

ERX-1410 Broadband Services Router

The ERX-1410 Broadband Services Router is a high-performance routing platform targeted at larger environments. Each 14-slot router contains a 10 Gbps switch fabric / route processor (SRP) with optional SRP redundancy for high availability and 12 slots dedicated to line modules. The ERX-1410 utilizes the same line modules and I/Os used across the entire E-series product line and supports up to OC-12c/STM-4 and Gigabit Ethernet speeds.

ERX-705 and ERX-710 Broadband Services Routers

The ERX-705 and ERX-710 Broadband Services Routers are compact, high-performance routing platforms targeted at environments where space is at a premium. Each 7-slot router contains either a 5 Gbps or 10 Gbps switch fabric / route processor (SRP) with optional SRP redundancy for high availability and 5 slots dedicated to line modules.

The ERX-705 and ERX-710 routers utilize the same line modules and I/Os used across the entire E-series product line and support up to OC-12c/STM-4 and Gigabit Ethernet speeds.

ERX-310

The ERX-310 Broadband Services Router is a very compact, high-performance routing platform targeted at small, distributed environments. The 3-slot router contains a 10 Gbps switch fabric/route processor (SRP) and 2 slots dedicated to line modules. The ERX-310 router utilizes the same ASIC-based line modules and I/Os used across the entire E-series product line and supports up to OC-12c/STM-4 and Gigabit Ethernet speeds.

High Availability

The E-series design provides the highest levels of redundancy and resiliency to ensure that VPN customers and broadband subscribers stay connected.

- Stateful Switch Router Processor (SRP) switchover
- Line Module Redundancy
- I/O Module Redundancy
- Automatic Protection Switching (APS)

Architecture and Key Components

The ERX system uses a modular, carrier-class design with a passive midplane, active front-insert line modules, and high-reliability, rear-insert input/output (I/O) modules. All chassis types use the same line modules and I/O modules. Consequently, service providers can limit their inventories of spare modules and easily upgrade from the smaller to the larger chassis as the subscriber base at a POP or central office (CO) increases.

The 7-slot and 14-slot systems support full redundancy and line module hot-swapping to optimize network uptime.

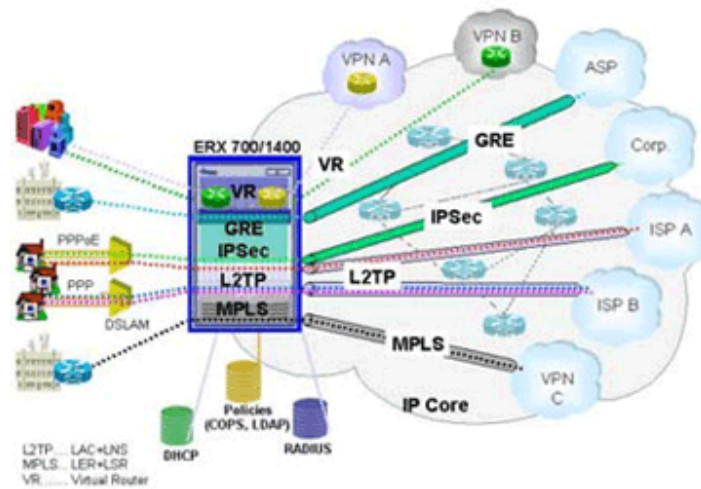
The system uses a highly distributed, multiprocessor architecture that distributes processing function to each port in the system to speed decision making and scale system growth. Consequently, the ERX

system supports next-generation routing features that provide differentiated services, wire-speed packet filtering, buffer management, and scheduling.

The ERX system makes use of application-specific integrated circuits (ASICs) in order to speed IP packet processing. The Juniper Networks custom ASICs, Edge Services Processors, help meet the forwarding demands of the Internet edge. Older-generation routers cannot cope with the processor demands of QoS functions, such as classification, queuing, and scheduling while routing packets at wire speed. The ERX system overcomes these limitations with its hardware-assisted architecture.

Typical applications

VPN services:



MPLS:

