Overview

Models

HP VSR1001 Comware 7 Virtual Services Router E-LTU	JG811AAE
HP VSR1004 Comware 7 Virtual Services Router E-LTU	JG812AAE
HP VSR1008 Comware 7 Virtual Services Router E-LTU	JG813AAE

Key features

- Virtualized enterprise-class x86 routing software
- Firewall, IPSec, and MPLS VPN security
- Agile deployments across the branch office, data center, and cloud
- Easy to deploy and manage remotely
- VMware and KVM hypervisor support

Product overview

The HP VSR1000 Router Series consists of virtualized applications that provide functionality that is similar to physical routers. The VSR1000 series enables significant operational savings as a result of its agility and ease of deployment. Like other virtual applications, the routers run in a virtual machine on an industry-standard x86-based server. Resources on the VSR1000 series can be dynamically allocated and upgraded on demand as performance requirements grow. The VSR1000 series is available in 1, 4, and 8 virtual CPU versions that have no expiration date. Robust routing is provided between networked devices using a number of popular routing protocols. In addition, the series provides critical network services associated with today's enterprise routers such as VPN gateway, firewall, and other security and traffic management functions. A variety of deployment models are supported, including enterprise branch CPE routing and cloud offloading for small- to medium-sized workloads.

Features and benefits

Virtualization

- **Hypervisor support**
  supports the following industry-standard hypervisors: VMware ESXi versions 4.1, 5.0, and 5.1; Linux KVM (Linux kernel version 2.6.25 or later)'
- **Recommended Linux operating systems**
  CentOS 6.3, Fedora 17, Ubuntu 12.10, Red Hat Enterprise Linux (RHEL) 6.3, and SUSE Linux Enterprise Server 11 SP2
- **Recommended vNICs**
  E1000 and VirtIO virtual NICs are recommended
- **Maximum of 16 vNICs supported**
  provides flexible virtual connectivity

Layer 3 routing

- **Static IPv4 routing**
  provides simple manually configured IPv4 routing
- **Static IPv6 routing**
  provides simple manually configured IPv6 routing
- **Routing Information Protocol (RIP)**
  uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection

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- **Routing Information Protocol next generation (RIPng)**
  extends RIPv2 to support IPv6 addressing
- **Open shortest path first (OSPF)**
  delivers faster convergence; uses this link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **OSPFv3**
  provides OSPF support for IPv6
- **Border Gateway Protocol (BGP)**
  provides IPv4 Border Gateway Protocol routing, which is scalable, robust, and flexible
- **BGP+**
  extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **Intermediate system to intermediate system (IS-IS)**
  uses a path vector Interior Gateway Protocol (IGP), which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **IS-IS for IPv6**
  extends IS-IS to support IPv6 addressing
- **Dual IP stack**
  maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- **IPv6 tunneling**
  allows a smooth transition from IPv4 to IPv6 by encapsulating IPv6 traffic over an existing IPv4 infrastructure
- **MPLS support**
  provides extended support of MPLS, including MPLS VPNs and MPLS Traffic Engineering (MPLS TE)
- **IGMPv1, v2, and v3**
  allow individual hosts to be registered on a particular VLAN
- **Multicast Routing PIM Dense and Sparse modes**
  provides robust support of multicast protocols
- **Policy-based routing**
  makes routing decisions based on policies set by the network administrator

Layer 3 services

- **Dynamic Host Configuration Protocol (DHCP)**
  simplifies the management of large IP networks
- **Domain Name System (DNS)**
  provides a distributed database that translates domain names and IP addresses, which simplifies network design; supports client and server
- **Address Resolution Protocol (ARP)**
  determines the MAC address of another IP host in the same subnet
- **User Datagram Protocol (UDP) helper**
  redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Additional IP services**
  delivers forwarding/fast forwarding (unicast/multicast), TCP, FTP server, FTP client, TFTP client, Telnet server, Telnet client, and NTP/SNTP

Quality of Service (QoS)

- **Traffic classification**
  utilizes port, MAC address, IP address, IP priority, DSCP priority, TCP/UDP port number, and protocol type
- **Traffic policing**

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supports committed access rate (CAR) and line rate (LR)

- **Traffic shaping**
  supports generic traffic shaping (GTS)
- **Congestion management**
  supports FIFO, weighted fair queuing (WFQ), and class-based queuing (CBQ)
- **Congestion avoidance**
  supports tail drop and weighted random early detection (WRED)
- **MPLS QoS**
  allows MPLS traffic classification

Virtual private network (VPN)

- **Generic Routing Encapsulation (GRE)**
  transports Layer 2 connectivity over a Layer 3 path in a secured way; enables the segregation of traffic from site to site
- **IPSec**
  provides secure tunneling over an untrusted network such as the Internet or a wireless network; offers data confidentiality, authenticity, and integrity between two network endpoints
- **Site-to-site connectivity**
  configures two IPSec VPN gateways to provide secure site-to-site communication between offices, partners, or suppliers; both IPSec or GRE tunnels are available

Security

- **Access control**
  supports ACL, AAA (local authentication, RADIUS, HWTACACS, LDAP), RBAC, portal, and IP source guard
- **Access control lists (ACLs)**
  provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **Firewall**
  - **Application specific packet firewall**
    tracks outbound session requests and temporarily enables session control and data exchange across the firewall boundary
  - **Packet filter firewall**
    delivers static ACL firewall policy support
- **Secure management access**
  delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv
- **Unicast Reverse Path Forwarding (URPF)**
  limits malicious traffic on a network
- **Network address translation (NAT)**
  provides a method for translating private IP addresses to public IP addresses, reducing the number of IP addresses used, and isolates the enterprise addressing environment
- **Additional security features**
  supports SSH (v1.5 and 2.0), GRE, L2TP, NAT/NAPT, session management, connection limit, and password management

Resiliency and high availability

- **Virtual Router Redundancy Protocol (VRRP)**
  allows a group of routers to dynamically back each other up to create highly available routed environments
- **Bidirectional Forwarding Detection (BFD)**
  supports BFD, enabling link connectivity monitoring and reduces network convergence tim

Management

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- **Local management**
  supports CLI, automatic configuration, and file system
- **Network management**
  supports HP Intelligent Management Center, SNMPv1/v2c/v3, and NETCONF
- **HP Intelligent Management Center (IMC)**
  integrates fault management, element configuration, and network monitoring from a central vantage point; built-in support for third-party devices enables network administrators to centrally manage all network elements with a variety of automated tasks, including discovery, categorization, baseline configurations, and software images; the software also provides configuration comparison tools, version tracking, change alerts, and more
- **Network monitoring**
  supports SNMPv1/v2c/v3, RMON, Syslog, NQA, sFlow, NetStream, and EAA
- **SNMPv1, v2, and v3**
  provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption

Warranty and support

- **Software releases**
  to find software for your product, refer to **www.hp.com/networking/support**; for details on the software releases available with your product purchase, refer to **www.hp.com/networking/warrantysummary**
- **Electronic and telephone support**
  limited electronic and business-hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to **www.hp.com/networking/contact-support**; for details on the duration of support provided with your product purchase, refer to **www.hp.com/networking/warrantysummary**

Technical Specifications

HP VSR1001 Comware 7 Virtual Services Router E-LTU (JG811AAE)

Management	IMC - Intelligent Management Center; command-line interface; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB
Notes	IPv4 forwarding performance: maximum 177 Kpps for VMware ESXi hypervisor; maximum 152 Kpps for Linux KVM hypervisor. Results are as tested with the HP DL360 G8 Server (CPU E5-690 at 2.9 GHz). Higher-performance servers may yield improved performance. IPSec performance: up to 343 Mb/s Number of virtual CPUs supported: 1 Minimum hardware requirements • CPU: 2.0 GHz • Memory: 1 GB • Disk space: 8 GB • Network interfaces: 2 virtual NICs
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP VSR1004 Comware 7 Virtual Services Router E-LTU (JG812AAE)

Management	IMC - Intelligent Management Center; command-line interface; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB
Notes	IPv4 forwarding performance: maximum 177 Kpps for VMware ESXi hypervisor; maximum 152 Kpps for Linux KVM hypervisor. Results are as tested with the HP DL360 G8 Server (CPU E5-690 at 2.9 GHz). Higher-performance servers may yield improved performance. IPSec performance: Up to 500 Mb/s Number of virtual CPUs supported: 4 Minimum hardware requirements • CPU: 2.0 GHz • Memory: 2 GB • Disk space: 8 GB • Network interfaces: 2 virtual NICs
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Technical Specifications

HP VSR1008 Comware 7 Virtual Services Router E-LTU (JG813AAE)

Management	IMC - Intelligent Management Center; command-line interface; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB
Notes	IPv4 forwarding performance: maximum 177 Kpps for VMware ESXi hypervisor; maximum 152 Kpps for Linux KVM hypervisor. Results are as tested with the HP DL360 G8 Server (CPU E5-690 at 2.9 GHz) Higher-performance servers may yield improved performance. IPSec performance: Up to 1 Gb/s Number of virtual CPUs supported: 8 Minimum hardware requirements • CPU: 2.0 GHz • Memory: 4 GB • Disk space: 8 GB • Network interfaces: 2 virtual NICs
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

To learn more, visit: www.hp.com/networking