

- Virtual solution
- Data routing
- Multiprotocol Label Switching (MPLS)
- Building a secure network (NAT, Firewall)
- Intrusion Detection and Prevention System (IPS/IDS)¹
- Filtering of network data by various criteria (including filtering by applications)
- Organization of secure network tunnels between company branches
- Remote connection of employees to an office
- Internet channel management and bandwidth allocation within an office using QoS
- Organization of a backup connection
- L2 client connections termination, bandwidth limitation, BRAS



vESR is a virtual service router designed for connection of small and middle-sized offices in enterprise networks. The functionality of firewall and router allows ensuring security with various Internet connection options. **vESR** supports advanced routing, WAN organization and network security functions.

Features and capabilities

Switching

- Up to 4094 VLAN (802.1Q)
- Voice-VLAN
- Q-in-Q (802.1ad)
- MAC-based VLAN
- Bridge domain
- LAG/LACP (802.3ad)

MPLS

- LDP
- L2VPN VPWS
- L2VPN VPLS Martini Mode, Kompella Mode
- L3VPN MP-BGP (Option A, B, C)
- L2VPN/L3VPN over GRE, DMVPN
- Transparent transmission of service protocols

Routing

BGP:

- IPv4, IPv6, VPNv4, L2VPN, IPv4 label-unicast, Flow-spec
- Support for Conditional Advertisement, Route Aggregation and Local-AS mechanisms
- Support for peer-group, dynamic neighbor, as-range and Route-reflector
- Fail over based on BFD protocol and Fast Error Peer Detection
- Graceful restart
- Authentication
- Flexible redistribution from/to BGP process of other protocol routes
- Running up to 64 processes simultaneously
- ECMP
- Support for policy-based routing

OSPF (v3):

- Normal, Stub, Totally stub, NSSA, Totally NSS
- Broadcast, NBMA, Point-to-point, Point-to-multipoint, Point-to-

multipoint non-broadcast

- Summarizing and filtering of route information
- Authentication
- ECMP
- Passive interface
- Flexible redistribution from/to OSPF process of other protocol routes
- Running up to 64 processes simultaneously
- Support for BFD protocol
- Auto cost calculation
- Support for policy-based routing

IS-IS:

- Broadcast, Point-to-point
- Setting the L1-/L2-levels neighboring
- Metric style: narrow, wide, transition
- Authentication
- Routing information filtering
- Flexible redistribution from/to the IS-IS process of other protocol routes
- Running up to 64 processes simultaneously
- Support for policy-based routing

RIP(ng):

- Broadcast, Multicast, Unicast modes (RIP only)
- Summarizing and filtering of route information
- Route metrics management
- Authentication
- Passive interface
- Flexible redistribution from/to the RIP process of other protocol routes
- Support for policy-based routing

Functionality for firmware version 1.34.

¹ Activated by a license.

Features and capabilities (continued)

Static:

- Support for BFD protocol
- Recursive search
- Route metrics management
- Selecting the option to notify the sender when traffic is blocked

Quality of Service (QoS)

- L2 and L3 traffic prioritization (802.1p (CoS), DSCP, IP Precedence (ToS))
- Hierarchical QoS
- Management of RED, GRED, SFQ, CBQ, WFQ, WRR queues
- Inlet and outlet labeling
- Policing, shaping

IPsec

- Policy-based and route-based modes
- Tunnel and transport modes
- Pre-shared key, public key, xauth (ikev1 only), eap (ikev2)
- Support for mobike (ikev2 only)
- Support for ike ikering authentication key sets

Remote Access

- Remote access to the corporate network via PPTP, L2TP over IPsec, OpenVPN, WireGuard
- Support for PPPoE-/PPTP-/L2TP client
- User authentication
- Connection encryption

Security

- ACL based on L2-/L3-/ L4 fields
- Zone-based Firewall in stateful and stateless modes.
Rule triggering logging, counters
- Filtering by applications
- Protection against DoS/DDoS/Spoof attacks and their logging
- Intrusion detection and prevention system (IPS/IDS) and their logging¹
- Signature analysis via IPS in transit and mirrored traffic analysis modes¹

Management and monitoring

- Support for standard and extended SNMP MIB, RMONv1
- Zabbix agent/proxy
- User authentication using local database via RADIUS, TACACS+, LDAP
- Protection against configuration errors, automatic configuration recovery
- CLI
- Syslog
- System resource usage monitoring
- Ping, monitor, traceroute (IPv4/IPv6), output packet information in console
- Firmware upgrade, configuration upload and download via TFTP, SCP, FTP, SFTP, HTTP(S)
- Support for NTP
- Netflow v5/v9/v10 (exporting of URL statistics for HTTP, host for HTTPS)
- Remote management, Telnet, SSH (IPv4/IPv6)
- LLDP, LLDP MED
- Local and remote saving of router configurations

SLA¹

- SLA-responder for Cisco-SLA-agent
- Eltex SLA:
 - Delay (one-way/double-way)
 - Jitter (forward/backward)
 - Packet loss (forward/backward/duplex)
 - Duplicate packet detection
 - Packet delivery sequence violation detection (forward/backward/ duplex)

Backup and clustering

- VRRP v2, v3
- Tracking based on VRRP or SLA test
- VRRP parameter management
- PBR parameter management
- Administrative interface status management
- Static route activation and deactivation
- Managing AS-PATH and preference attribute in route-map
- DHCP failover for IP addresses base backup issued by the DHCP server
- Firewall failover for Firewall and NAT session backup
- MultiWAN

Fault-tolerant cluster:

- Easy administration and integration: synchronization of configurations, time, versions, licenses
- Backup all connections in the cluster
- Router backup ("1+1" backup is supported in the current version)

Services

- DHCP client, service
- DHCP Relay Option 82
- DNS resolver
- NTP
- TFTP server

BRAS¹

- User termination
- URL whitelists/blacklists
- Quoting by traffic volume, by session time, by network applications
- HTTP/HTTPS Proxy
- HTTP/HTTPS Redirect
- Netflow
- AAA, PCRF
- Bandwidth management by office, SSID and user sessions
- User authentication by MAC or IP address

DMVPN

- NHRP
- DMVPN phase 1,2,3
- Per-Tunnel QoS
- IPsec

Tunneling

- IPoGRE, EoGRE
- IPIP
- L2TPv3
- LT (inter VRF routing)

Functionality for firmware version 1.34.

¹ Activated by a license.

Minimum system requirements¹

Processor	x86-64 architecture, clock frequency at least 1.8 GHz Support for MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2 instructions (processor generation Intel Nehalem/AMD Barcelona CPU or higher)
RAM	No less than 3 GB
Storage	No less than 375 MB
Hypervisors	VirtualBox version 6.0, Xen in HVM mode, version 4.16 or higher, Proxmox version 8.1.4, QEMU 2 version 2.6.2, VMWare Workstation/ESXi version 6.7.0 GNS 3 version 2.2.5 EVE-NG version 6.2.0 PNETLab version 4.2.10
I/O	Emulation: Intel E1000, Intel E1000E, VMXNET2, VMXNET3 Paravirtualization: VirtIO PCI Pass-through: Intel XL710 Ethernet Controller (2x40/1x40/4x10/2x20/2x10/1x10), Intel X722 Ethernet Controller (2x10/4x10) RTL8169 PCI Gigabit Ethernet Controller RTL810xE PCI Express Fast Ethernet controller RTL-8110SC/8169SC Gigabit Ethernet RTL8111/8168/8411 PCI Express Gigabit Ethernet Controller RTL-8100/8101L/8139 PCI Fast Ethernet Adapter

Performance (single core)

Processor	Adapter	Mbit/s result			PPS result		
		74B	1518B	IMIX	74B	1518B	IMIX
Intel(R) Xeon(R) Silver 4208 CPU @ 2.10GHz	PCI	171.621	4 146.848	1 846.154	289 898	341 440	335 211
	VMXNET3	130.678	2 962.065	1 456.598	220 744	243 906	264 670
Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz	PCI	147.289	2 502.180	1 360.824	248 810	206 043	246 887
	VMXNET3	82.682	1 677.985	804.037	139 761	138 173	146 370

Number of CPUs by role

	vESR (1 CPU)	vESR (2 CPU)	vESR (3 or more CPU)
Controlling CPU ²	0	0	0
Balancing CPU ³	0	1	1
Service CPU ⁴	0	1	2+

Functionality for firmware version 1.34.

¹ The requirements allow to perform vESR installation and initial launch with basic configuration.

² The processor core that runs the operating system and processes the control-plane traffic.

³ The separate core dedicated to balancing transit sessions between service CPUs.

⁴ Cores processing the data-plane.

Ordering information

Option	Description
vESR FREE	vESR FREE software service router option, 1 Mbit/s, 1024 RIB BGP, 1000 RIB OSPF, 1000 RIB IS-IS, 1000 RIB RIP, 2 VPN
vESR BASIC	vESR BASIC software service router option, 100 Mbit/s, 512k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 6 VPN, 1 year
vESR BASIC+	vESR BASIC+ software service router option, 500 Mbit/s, 512k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 12 VPN, 1 year
vESR STANDARD	vESR STANDARD software service router option, 1 Gbit/s, 768k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 24 VPN, 1 year
vESR STANDARD+	vESR STANDARD+ software service router option, 5 Gbit/s, 1024k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 64 VPN, 1 year
vESR ADVANCED	vESR ADVANCED software service router option, 10 Gbit/s, 2048k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 64 VPN, 1 year
vESR ADVANCED+	vESR ADVANCED+ software service router option, 25 Gbit/s, 4096k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 64 VPN, 1 year
vESR PREMIUM	vESR PREMIUM software service router option, 50 Gbit/s, 5000k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 256 VPN, 1 year
vESR PREMIUM+	vESR PREMIUM+ software service router option, 100 Gbit/s, 5000k RIB BGP, 500k RIB OSPF, 500k RIB IS-IS, 10k RIB RIP, 256 VPN, 1 year

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Eltex Enterprise is a leading Russian developer and manufacturer of communication equipment with 30 years of history. Complete solutions and their seamless integrability into the Customer's infrastructure are the priority growth areas of the company.