ELTEX
Integrated networking solutions

– **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 different offices of a company**
– **Remote connection of staff members to an office**
– **Internet channel management and bandwidth allocation within an office using QoS**
– **Organization of redundant connection**
– **L2 subscriber connections termination, bandwidth shaping, IPoE BRAS[1]**

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)

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

Routing
BGP:
– IPv4, IPv6, VPNv4, L2VPN, IPv4 label-unicast, Flow-spec
– Ability to manage route information flexibly by attributes. Support for Conditional Advertisement, Route Aggregation and Local-AS mechanisms
– High user mobility and flexibility: support for peer-group, dynamic neighbor, as-range and Route-reflector
– Fall over based on the BFD protocol and Fast Error Peer Detection
– Graceful restart
– Authentication
– Flexible redistribution from/to the BGP process of other protocols routes
– Ability to run up to 64 processes simultaneously
– ECMP
– 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
– Summarization and filtering of route information
– Authentication
– ECMP
– Passive interface
– Flexible redistribution from/to the OSPF process of other protocols routes
– Ability to run up to 64 processes simultaneously
– BFD
– Auto cost calculation
– Policy-based routing

IS-IS:
– Broadcast, Point-to-point
– Setting the neighborhood of L1-/L2-levels
– Metric style: narrow, wide, transition
– Authentication
– Filtering of route information
– Flexible redistribution from/to the IS-IS process of other protocols routes
– Ability to run up to 64 processes simultaneously
– Policy-based routing

RIP(ng):
– Operation in modes (RIP only): Broadcast, Multicast, Unicast
– Summarization and filtering of route information
– Route metric management
– Authentication
– Passive interface
– Flexible redistribution from/to the RIP process of other protocols routes
– Policy-based routing

For firmware version 1.28.0.
[1] Activated by a license

Features and capabilities (continued)

Static:
– BFD
– Recursive search
– Route metric management
– Ability to select the notification option to the sender when blocking traffic

Quality of Service (QoS)
– L2- and L3 traffic prioritization (802.1p (CoS), DSCP, IP Precedence (ToS))
– Hierarchical QoS
– Queue management: RED, GRED, SFQ, CBQ, WFQ, WRR
– Marking at the entrance and exit
– Policing, shaping

IPsec
– Policy-based and route-based modes
– Encapsulation modes: tunnel and transport
– Types of authentication: 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
– Support for access control lists (ACLs) based on L2-/L3-/L4-fields
– Zone-based Firewall in two modes: stateful and stateless. Logging of rule triggers, counters
– Filtering by applications
– Protection against DoS/DDoS/Spoof attacks and their logging
– Intrusion Detection and Prevention System (IPS/IDS) and their logging[1]
– IPS signature analysis in two modes: transit and mirrored traffic analysis[1]

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, traceroute (IPv4/IPv6), packet information in the console output
– 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 control, Telnet, SSH protocols (IPv4/IPv6)
– LLDP, LLDP MED
– Local/remote router configuration storage

SLA[1]
– SLA-responder для Cisco-SLA-agent
– Eltex SLA:
    – Delay (one-way/two-way)
    – Jitter (forward/reverse)
    – Packet loss (forward/reverse/two-way)
    – Detection of duplicate packages
    – Packet delivery sequence violation detection (forward/reverse/two-way)

Redundancy and clustering
– VRRP v2, v3
– Tracking based on a VRRP or SLA test
– VRRP parameter management
– PBR parameter management
– Management of the interface administrative status
– Activation and deactivation of a static route
– Management of the AS-PATH and preference attributes in the route-map
– DHCP failover for database redundancy of IP addresses assigned by the DHCP server
– Firewall failover for reserving Firewall and NAT sessions
– MultiWAN

Fault-tolerant cluster:
– Zero Touch Provisioning (ZTP)
– Redundancy of all connections in the cluster
– Router redundancy (the current version supports "1 + 1" redundancy)

Services
– DHCP client, server
– DHCP Relay Option 82
– DNS resolver
– NTP
– TFTP server

BRAS[1]
– User termination
– Whitelisted/blacklisted URLs
– Quotas in terms of traffic volume, session time, and network applications
– HTTP/HTTPS Proxy
– HTTP/HTTPS Redirect
– Session accounting using the Netflow protocol
– Interaction with AAA and PCRF servers
– Bandwidth management by offices and SSIDs, user sessions
– Authentication of users by MAC or IP addresses

For firmware version 1.28.0.
[1] Activated by a license

Minimum system requirements[1]

Processor	x86-64 architecture, clock frequency of 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 or higher, Proxmox version 8.1.4 or higher, QEMU 2 version 2.6.2 or higher, VMWare Workstation/ESXi version 6.7.0 or higher, GNS 3 version 2.2.5 or higher, EVE-NG version 6.2.0 or higher, PNETLab version 4.2.10 or higher

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)

Performance (single core)

Processor	Adapter	Result Mbit/s			Result PPS		
		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

For firmware version 1.28.0.
[1] The given requirements allow the installation of vESR and initial start-up with basic configuration.

Ordering information

Option	Description
vESR FREE	vESR FREE software service router option, 1 Mbit/s, 1024 RIB BGP, 1000 RIB OSPF, 1000 RIB RIP, 1000 RIB ISIS, 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.