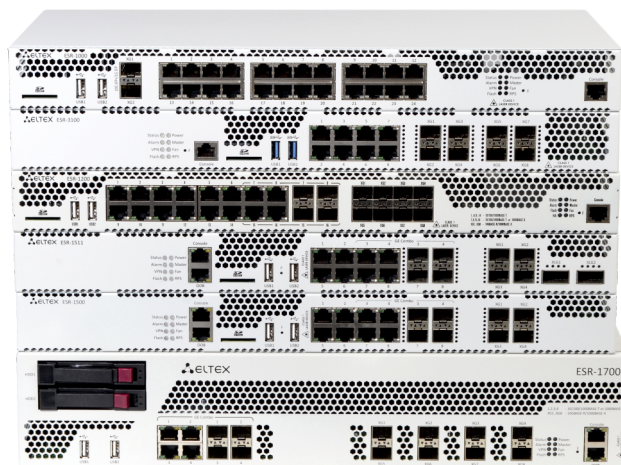


Typical tasks performed by service routers:

- Data routing
- Multi-protocol Label Switching (MPLS)
- Construction of secure network perimeter (NAT, Firewall)
- Network attacks prevention and monitoring (IPS/IDS)
- Service quality monitoring (SLA)
- 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 office
- Management and distribution of Internet channel width within an office by using QoS
- Organization of redundant connection (by means of wires or 3g/LTE modem)
- User termination and bandwidth limiting – BRAS (IPoE)



Performance

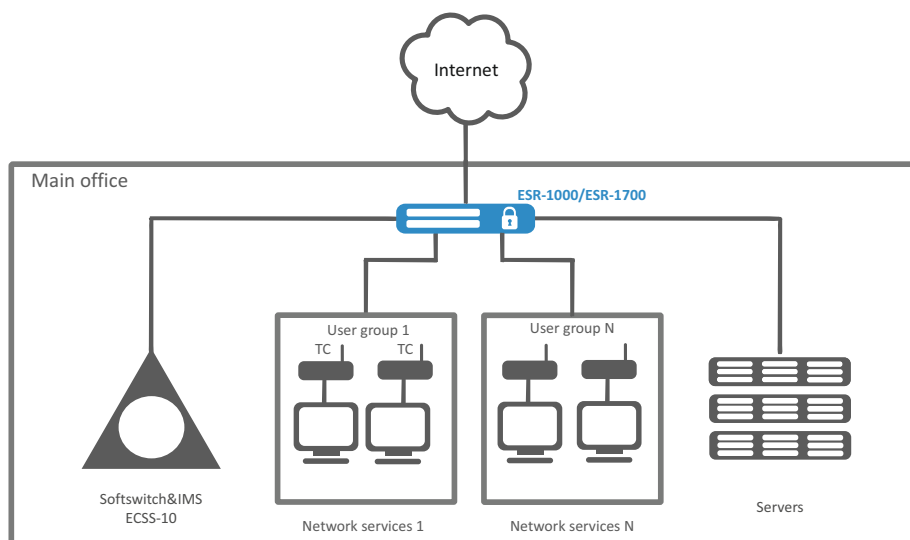
The key elements of ESR service routers are data processing hardware acceleration means that ensure a high level of performance. Hardware and software processing is distributed among the units of the device.

Functional area

The family of ESR routers is a universal hardware platform capable of performing a wide range of tasks related to network security, data encryption, user termination, etc. The product line includes models that can be used in networks of various sizes – from small enterprise networks to carrier networks and data centers.

- Scalable solution for different fields of application
- Flexible service configuration
- Interfacing with the equipment of leading manufacturers
- Hardware acceleration of data processing

Use case



Technical features

| | ESR-1000 | ESR-1200 | ESR-1500 | ESR-1511 | ESR-3100 | ESR-1700 |
|--|---|----------|---------------------------|---------------------------|---------------------------|--------------------------|
| General parameters | | | | | | |
| Packet processor | Broadcom XLP316L | | Broadcom XLP516 | Broadcom XLP532 | Marvell-Cavium CN8370 | Broadcom XLP780 |
| Interfaces | | | | | | |
| Combo 10/100/1000BASE-T/1000BASE-X SFP (LAN/WAN) | — | 4 | 4 | 4 | — | 4 |
| Ethernet 10/100/1000BASE-T (LAN/WAN) | 24 | 12 | 4 | 4 | 8 | — |
| 10GBASE-R SFP+/1000BASE-X SFP (LAN/WAN) | 2 | 8 | 4 | 4 | 8 | 8 |
| 40GBASE-X QSFP+ (LAN/WAN) | — | — | — | 2 | — | — |
| Console (RJ-45) | 1 | | | | | |
| OOB | — | — | 1 | 1 | — | 1 |
| USB 2.0 | 2 | 2 | 2 | 2 | — | 2 |
| USB 3.0 | — | — | — | — | 2 | — |
| Socket for HDD installation | — | — | — | — | — | 2 |
| SD card port | 1 | 1 | 1 | 1 | 1 | — |
| Performance | | | | | | |
| Firewall/NAT/routing (1518B frames) | 8.78 Gbps; 723 k pps | | 12.33 Gbps; 1015 k pps | 18.36 Gbps; 1512 k pps | 13.52 Gbps; 1113 k pps | 39 Gbps; 3216 k pps |
| Firewall/NAT/routing (70B frames) | 425 Mbps; 718 k pps | | 616 Mbps; 1100 k pps | 881 Mbps; 1489 k pps | 665 Mbps; 1123 k pps | 2672 Mbps; 4513 k pps |
| IPsec VPN (1456B frames) | 2.37 Gbps; 203 k pps | | 3 Gbps; 257 k pps | 4.63 Gbps; 398 k pps | 2.10 Gbps; 180 k pps | 13.6 Gbps; 1168 k pps |
| IPS/IDS 10k rules | 584.89 Mbps; 116,62 k pps | | 759 Mbps; 150 k pps | 1130 Mbps; 231 k pps | 850 Mbps; 170 k pps | 3430 Mbps; 684 k pps |
| MPLS (1518B frames) | 9.71 Gbps; 800 k pps | | 16.38 Gbps; 1349 k pps | 16.72 Gbps; 1381 k pps | * | * |
| System features | | | | | | |
| VPN tunnels | 500 | | | | | |
| Static routes | 11k | | | | | |
| Concurrent sessions | 512k | | | | | |
| VLAN support | up to 4k active VLANs in accordance with 802.1Q | | | | | |
| BGP routes | 5M | | | | | |
| OSPF routes | 500k | | | | | |
| RIP routes | 10k | | | | | |
| MAC table | 16k | 128k | 128k | 128k | 2k entries per bridge | 128k |
| FIB size | 1.7M | 1.7M | 1.7M | 1.7M | 1.7M | 3.0M |
| VRF Lite | 32 | | | | | |

Functionality for firmware version 1.13.0

* To be measured

Physical specifications

| | ESR-1000 | ESR-1200 | ESR-1500 | ESR-1511 | ESR-3100 | ESR-1700 |
|---|--|----------|------------|------------|------------|---|
| Physical specifications and ambient parameters | | | | | | |
| Max. power consumption | 75 W | 85 W | 125 W | 128 W | 123 W | 250 W |
| Max. noise level | 58 dB | 58 dB | 70 dB | 70 dB | 70 dB | 70 dB |
| Power supply | 100–240 V AC, 50–60 Hz; 36–72 V DC Up to two hot-swappable power units | | | | | 176–264 V AC, 50–60 Hz; 36–72 V DC Up to two hot-swappable power units |
| Operating temperature | from -10 to +45 °C | | | | | |
| Storage temperature | from -40 to +70 °C | | | | | |
| Operating humidity | 80% max. | | | | | |
| Storage humidity | from 10% to 95% | | | | | |
| Dimensions (WxHxD, mm) | 430x44x352 | | 430x44x425 | 430x44x425 | 430x44x330 | 440x88x490 |
| Weight | 3.6 kg | 5.5 kg | 7 kg | 7 kg | 5 kg | 12 kg |
| Average service life | at least 15 years | | | | | |

Features and capabilities

Plug-in interfaces

- USB 3G/4G/LTE modem (except ESR-1700)
- E1 TopGate SFP

Remote Access VPN clients

- PPTP/PPPoE/L2TP/OpenVPN/IPsec XAUTH

Remote Access VPN server

- L2TP/PPTP/OpenVPN/IPsec XAUTH

Site-to-site VPN

- IPsec: «policy-based» and «route-based» modes
- DMVPN
- DES, 3DES, AES, Blowfish, Camellia encryption algorithms
- IKE MD5, SHA-1, SHA-2 message authentication

Tunneling

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

L2 functions

- Packet switching (bridging)
- STP, RSTP, MSTP 802.1D (only for ESR-1000)
- LAG/LACP (802.3ad)
- VLAN support (802.1Q)
- Port Isolation (only for ESR-1000, ESR-1200, ESR-1500, ESR-1700)
- Private VLAN Edge (PVE) (only for ESR-1000, ESR-1200, ESR-1500, ESR-1700)
- Logical interfaces
- LLDP, LLDP MED
- MAC-based VLAN

L3 functions (IPv4/IPv6)

- NAT, Static NAT, ALG
- Static routes
- Dynamic routing protocols RIPv2, OSPFv2/v3, IS-IS, BGP
- Route filtering (prefix list)
- VRF Lite
- Policy Based Routing (PBR)
- BFD for BGP, OSPF, static routes

Features and capabilities

BRAS (IPoE)¹

- User termination
- White/black URL lists
- Quotas for traffic volume, session time, network applications
- HTTP/HTTPS Proxy
- HTTP/HTTPS Redirect
- Session accounting via Netflow protocol
- Interaction with AAA, PCRF
- Bandwidth management by offices, SSIDs and user sessions
- User authentication by MAC or IP address

Network security functions

- Intrusion Detection/Prevention system (IPS/IDS)¹
- Interaction with Eltex Distribution Manager for obtaining licensable content — rule sets, distributed by Kaspersky SafeStream II¹
- Web filtering by URL, by content (cookies, ActiveX, JavaScript)
- Zone-based Firewall
- Filtering based on L2/L3/L4 fields and applications
- Support for access control lists (ACL) based on L2/L3/L4 fields
- Protection against DoS/DDoS attacks and notification on them
- Logging of attack and rule triggering events

Quality of Service (QoS)

- Up to 8 priority or weighted queues per port
- L2 and L3 traffic prioritization (802.1p (cos), DSCP, IP Precedence (tos))
- RED, GRED congestion avoidance algorithms
- Precedence re-marking mechanisms
- Applying policies (policy-map)
- Bandwidth management (shaping)
- Hierarchical QoS
- Session labeling

IP addressing management (IPv4/IPv6)

- Static IP addresses
- DHCP client
- DHCP Relay Option 82
- Embedded DHCP server, support for options 43, 60, 61, 150
- DNS resolver
- IP unnumbered

Network reliability assurance means

- Dual homing (only for ESR-1000)
- VRRP v2,v3
- Route tracking based on VRRP state (tracking)
- WAN interfaces load balancing, data stream redirection, channel switching during QoS control
- Firewall sessions backup

Management and monitoring

- Support for standard and extended SNMP MIB, RMONv1
- Embedded Zabbix agent
- User authentication through a local database via RADIUS, TACACS+, LDAP
- Protection against configuration errors, automatic configuration recovery.
Ability to reset the configuration to the factory settings.
- CLI
- Syslog
- System resource utilization monitoring
- Ping, traceroute (IPv4/IPv6), output of packets information in the console
- Firmware upgrade, configuration upload and download via TFTP, SCP, FTP, SFTP, HTTP(S)
- NTP support
- Netflow v5/v9/v10 exporting of URL statistics for HTTP, host for HTTPS)
- Local control via RS-232 (RJ-45)
- Remote control via Telnet, SSH (IPv4/IPv6)
- Displaying information on services services/processes
- Local/remote router configuration storage

MPLS

- LDP
- L2VPN VPWS
- L2VPN VPLS Martini Mode
- L2VPN VPLS Kompella Mode
- L3VPN MP-BGP

SLA control functions

- Eltex SLA
Channel parameters evaluation:
 - Delay (one-way/two-way)
 - Jitter (one-way/two-way)
 - Packet loss (one-way/two-way)
 - Packet Error Rate
 - Out-of-order delivery
- Wellink SLA (wiSLA)¹

Functionality for firmware version 1.13.0A

¹ Activated by the license

Ordering information

| Name | Description |
|-----------------|---|
| ESR-1000 | ESR-1000 service router, 24x10/100/1000BASE-T, 2x10GBASE-R SFP+, 1xConsole (RJ-45), 2xUSB 2.0, 1 slot for SD cards, 4GB RAM (8GB available upon a request), 1GB NAND-Flash, 2 slots for power modules 100–240 V AC or 36–72 V DC. |
| ESR-1200 | ESR-1200 service routers, 4xCombo10/100/1000BASE-T/1000BASE-X, 8x10GBASE-R SFP+, 12x10/100/1000BASE-T, 1xConsole (RJ-45), 2xUSB 2.0, 1 slot for SD cards, 4GB RAM (8GB available upon a request), 1GB NAND-Flash, 2 slots for power modules 100–240 V AC or 36–72 V DC. |
| ESR-1500 | ESR-1500 service router, 4x10/100/1000BASE-T, 4xCombo 10/100/1000BASE-T/1000BASE-X, 4x10GBASE-R SFP+, 1xConsole (RJ-45), 1xOOB, 4GB RAM, 1GB NAND-Flash, 2 slots for power modules 100–240 V AC or 36–72 V DC. |
| ESR-1511 | ESR-1500 service routers, 4x10/100/1000BASE-T, 4xCombo 10/100/1000BASE-T/1000BASE-X, 4x10GBASE-R SFP+, 1xConsole (RJ-45), 1xOOB, 4GB RAM, 1GB NAND-Flash, 2 slots for power modules 100–240 V AC or 36–72 V DC. |
| ESR-3100 | ESR-3100 service router, 8x10/100/1000BASE-T, 8x10GBASE-R SFP+, 1xConsole (RJ-45), 2xUSB 3.0, 1 slot for SD cards, 16GB RAM, 4GB eMMC, 2 slots for power modules 100–240 V AC or 36–72 V DC. |
| ESR-1700 | ESR-1700 service router, 4xCombo 10/100/1000BASE-T/1000BASE-X, 8x10GBASE-R SFP+, 1xConsole (RJ-45), 1xOOB, 32GB RAM, 1GB SSD, 2 slots for HDD installation, 2 slots for power modules 176–264 V AC or 36–72 V DC. |


Power modules²

| Device | AC power module | DC power module |
|-----------------|-----------------|-----------------|
| ESR-1000 | PM160-220/12 | PM100-48/12 |
| ESR-1200 | PM160-220/12 | PM100-48/12 |
| ESR-1500 | PM160-220/12 | PM160-48/12 |
| ESR-1511 | PM160-220/12 | PM160-48/12 |
| ESR-3100 | PM160-220/12 | PM160-48/12 |
| ESR-1700 | PM350-220/12 | PM350-48/12 |

² Ordered separately

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Eltex Enterprise is a leading Russian developer and manufacturer of communication equipment with more than 25 years of history. Complete solutions and their seamless integrability into the Customer's infrastructure are the priority growth areas of the company.