– **Virtual (vESBC) and hardware (ESBC-3200) implementation**
– **Protection of business processes**

vESBC

ESBC-3200

ESBC is an element of VoIP network that participates in call processing as a session border controller. The device provides signal protocol normalization, network protection against unauthorized access and attacks, and statistics collection.

Application

ESBC is deployed at the border of the IP networks:
– between service providers' networks;
– between service provider network and Customer's corporate network;
– between service provider network and a public network.

Features

– Ensuring security for service provider networks
– Public IP addresses translation
– Flexible distribution of redundancy routes
– Support for SIP subscribers
– SDP analysis and verification
– Flexible calls distribution according to established rules
– Modification of SIP headers using PCRE regular expressions
– Flexible call routing
– Routing to a group of directions with balancing logic support
– Support for dynamic trunk operation
– Support for redirection in case of an unsuccessful call (monitoring by SIP response codes)
– Support for 3XX response processing for managing call redirection
– Monitoring the availability of directions by OPTIONS
– RTP sessions management
– Storing and recovering records of registered subscribers in the database
– Transcoding/proxying media (audio and video)
– Support for WebRTC+ICE for browser applications
– Support for QoS (Diffserv designation) for SIP and RTP
– Recording billing information in a CDR file, simultaneous recording of a CDR file on local media and a remote server
– Monitoring via SNMP, sending SNMP traps in case of an accident

Bypassing NAT

NAT bypassing is a necessary feature that provides transparent transmission of voice and video traffic over IP networks:
– Support for nat-comedia
– Support for Public-IP

Security

ESBC provides network protection against unauthorized access. Intellectual access management, ingress load limiting and network topology hiding ensure security of a network. The use of SIP signaling encryption and media streams ensures the confidentiality and security of the transmitted data.
– Dynamic firewall
– Protection from SIP flood
– Blocking by AOR, User-Agent
– Blocking by SIP message contents
– Support for signaling encryption (TLS) and media streams (SRTP SDES, DTLS-SRTP)

Traffic control

ESBC allows to control the number of incoming requests depending on the direction.
– Managing the number of installed sessions, limiting incoming CPS, RPS

Network topology hiding

ESBC allows providing access to a carrier or corporate network from an untrusted connection, ensuring security of a Company business data.
The following mechanisms are used:
– intellectual IP addresses translation for signalling and media traffic;
– full B2BUA provides a required network isolation level.

Redundancy

The use of a cluster redundancy scheme and redundant power supplies ensures full-scale redundancy.

ESBC-3200 technical features

Interfaces	
1000BASE-X/10GBASE-R/25GBASE-R	12
Console RS-232 (RJ-45)	1
OOB	1
USB 2.0	1
microSD card slot	1
CPU	
CPU	24
Physical specifications and ambient parameters	
RAM	24 GB
Flash	8 GB eMMC
Maximum power consumption	118 W
Power supply	100–240 V AC, 50–60 Hz; 36–72 V DC Up to two hot-swappable power supplies
Operating temperature	from -10 to +45 °C
Storage temperature	from -40 to +70 °C
Operating humidity	no more than 80 %
Operating storage humidity	from 10 to 95%
Dimensions (W × H × D)	430 × 44 × 330 mm
Weight	5.3 kg
Lifetime	no less than 15 years

Minimum system requirements for vESBC virtual solution[1]

Processor	x86-64 architecture, clock speed no less than 1.8 GHz
Set of instructions	MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2 (Intel Nehalem or AMD Barcelona CPU generation or higher)
RAM	3 GB
Disc space	2 GB
Hypervisors (minimum versions are specified)	VirtualBox 6.0, ESXi 6.7.0, QEMU/KVM 2.6.2, Proxmox 8.1.4, GNS3 2.2.53, EVE-NG 6.2.0, PNETLab 4.2.10, Xen 4.16
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)

[1] *The requirements allow for the installation of vESBC and the initial launch with the basic configuration.*

vESBC and ESBC-3200 performance

Operating mode	vESBC[1]	ESBC-3200
Maximum number of simultaneous calls		
Proxying with G711a codec	up to 19500	up to 6000
Transcoding G711a <---> G729	up to 2000	up to 280
Proxying with G711a codec and RTP <---> SRTP (SDES) conversion	up to 14000	up to 5000
Maximum number of calls per second (CPS)		
Proxying with G711a codec	up to 300	up to 150
Transcoding G711a <---> G729	up to 300	up to 150
Proxying with G711a codec and RTP <---> SRTP (SDES) conversion	up to 300	up to 150

Features and capabilities

Signaling protocols
– SIP

SIP functionality
– RFC-3261
– RFC-3264 (Offer/Answer)
– RFC-3311 (Update Method)
– RFC-4566 (SDP)
– RFC-1889 (RTP)
– RFC-2833 (Telephone Event)
– RFC-3515 (Refer Method)
– RFC-3265 (Subscribe)
– RFC-6086 (INFO Method)
– RFC 7118 (WebSocket)
– RFC 8445 (ICE) except STUN/TURN
– RFC 5768 (ICE SIP)
– RFC 8839 (SDP ICE)
– B2BUA peering

Media protocols
– RTP
– RTCP
– SRTP (SDES, DTLS)

Transport protocols
– TCP
– UDP
– TCP/UDP interworking
– TLS
– WS/WSS

Network protocols
– IPv4
– IPv6[2]

Video codecs (in transcoding mode)
– H.263-1998
– H.264
– VP8
– VP9

Redundancy[3]
– Warm standby 1+1 redundancy
– Simple administration and integration: synchronization of configurations, time, versions; Zero Touch Provisioning (ZTP)

Security
– Protection against DoS
– Protection against VoIP attacks

Fax transmission
– T.38
– G.711

Audio codecs (in transcoding mode)
– G.711 (a-law, μ-law), G.729, G.722, G.726, iLBC, opus, speex, AMR, GSM, L16-mono

Management
– MML console (SSH/Telnet)
– Web interface[4]
– Dedicated management port (OOB) 10/100/1000BASE-T (RJ-45) (only for ESBC-3200)

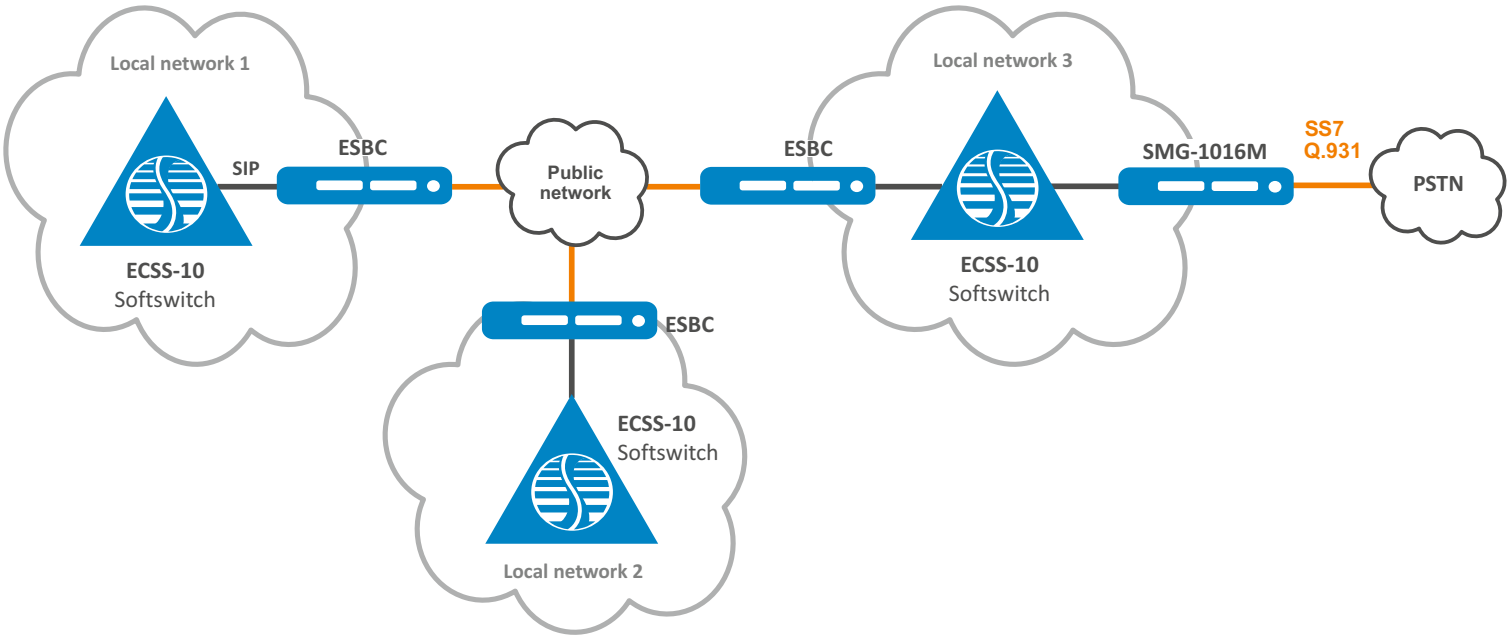
Licensing
– Virtual solution (vESBC) is licensed using ELM (Eltex Licence Manager)
– Hardware solution (ESBC-3200) is licensed using ELM or a license file

[1] Server characteristics: CPU — 2 x Intel(R) Xeon(R) Gold 6230 CPU @ 2.10GHz, 64 GB RAM, NIC — Intel X710 for 10GbE SFP+. Virtual machine characteristics: 75 CPU, 32 GB RAM, PCI Pass-through.
[2] Not supported in the current firmware version.
[3] Redundancy is supported only on the ESBC-3200.
[4] Under development. Several functions are available in the current firmware version.

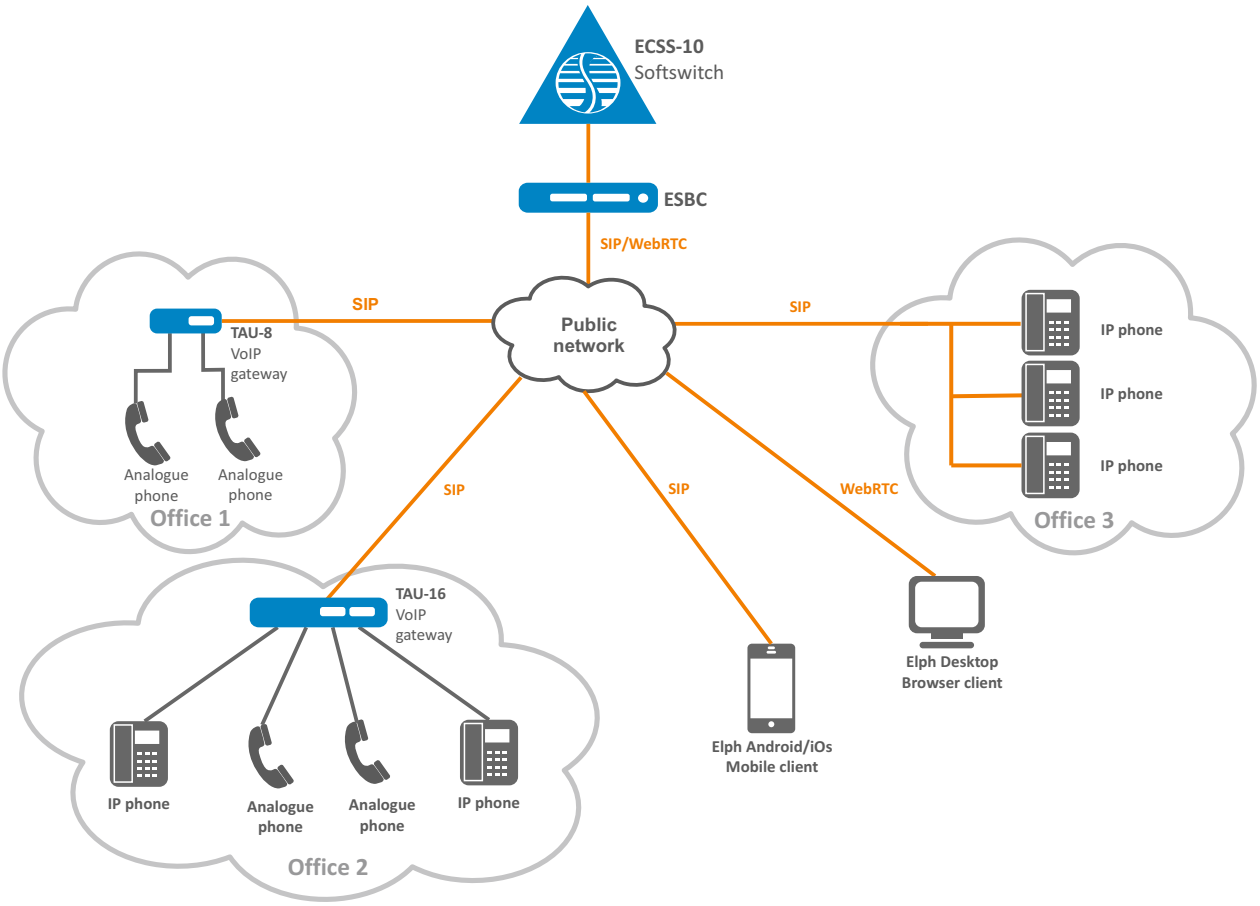
Integrated networking solutions

Application

Service providers' interaction



Virtual PBX service



Ordering information

Name	Description
vESBC	Software session border controller vESBC.
ESBC-3200	Session border controller ESBC-3200.
Options for ESBC[1]	
ESBC-CC-10	Activation of 10 simultaneous calls.
ESBC-CC-50	Activation of 50 simultaneous calls.
ESBC-CC-100	Activation of 100 simultaneous calls.
ESBC-CC-500	Activation of 500 simultaneous calls.
ESBC-CC-5000	Activation of 5000 simultaneous calls.
ESBC-CPS-20	Activation of incoming load intensity support of 20 CPS.
ESBC-CPS-40	Activation of incoming load intensity support of 40 CPS.
ESBC-CPS-60	Activation of incoming load intensity support of 60 CPS.
ESBC-CPS-80	Activation of incoming load intensity support of 80 CPS.
ESBC-CPS-100	Activation of incoming load intensity support of 100 CPS.

Power modules[2]

Device	AC power module	DC power module
ESBC-3200	PM160-220/12	PM160-48/12

[1] *The ESBC-CC and ESBC-CPS options should be included in the order.*
[2] *Determined when ordering.*

Contact us

+7 (383) 274 10 01
+7 (383) 274 48 48

eltex@eltex-co.ru

www.eltex-co.com

About Eltex

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.