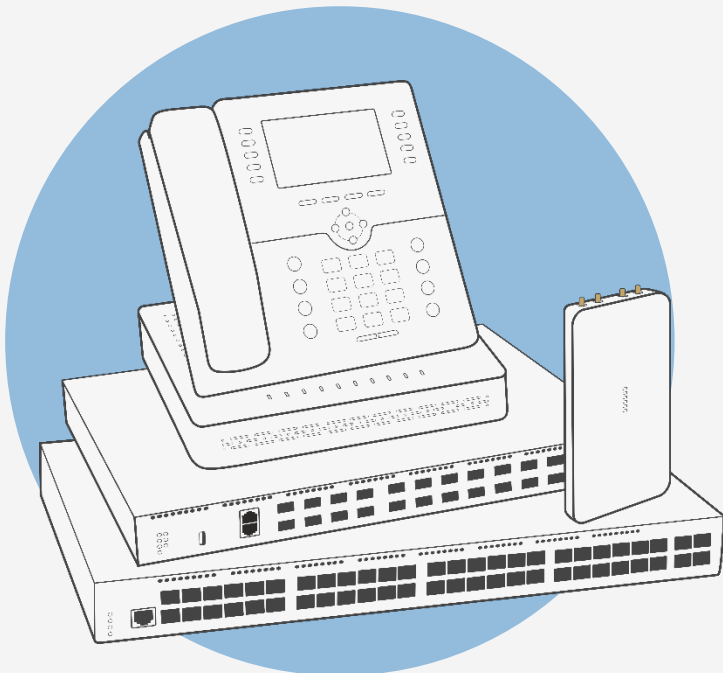




Development and production of telecommunication equipment



ELTEX ALATAU

EXPERIENCE

- **The company was founded in 2012**
- The company appeared on the initiative of the Government of Kazakhstan and operates in the PIT SEZ (Special Economic Zone "Park of Innovative Technologies".)
- In 2015, Eltexalatau received the award of the President of the Republic of Kazakhstan "**Altyn Sapa**" in the nomination "**Best innovative project**«
- A manufacturing company that has its facilities in Kazakhstan in Alma-Ata
- A wide staff of developers

PARTNERS

- Main customers are from Kazakhstan , Central Asia and the Middle East
- More than **20 000** client companies



PRODUCTION COMPLEX IN ALMA ATA



FULL CYCLE OF EQUIPMENT DEVELOPMENT, PRODUCTION AND SUPPORT



DEVELOPMENT

- Hardware
- Software



MANUFACTURE

- Surface-mount technology
- Through-hole technology
- Assembling
- Software installation
- Testing of serial production equipment



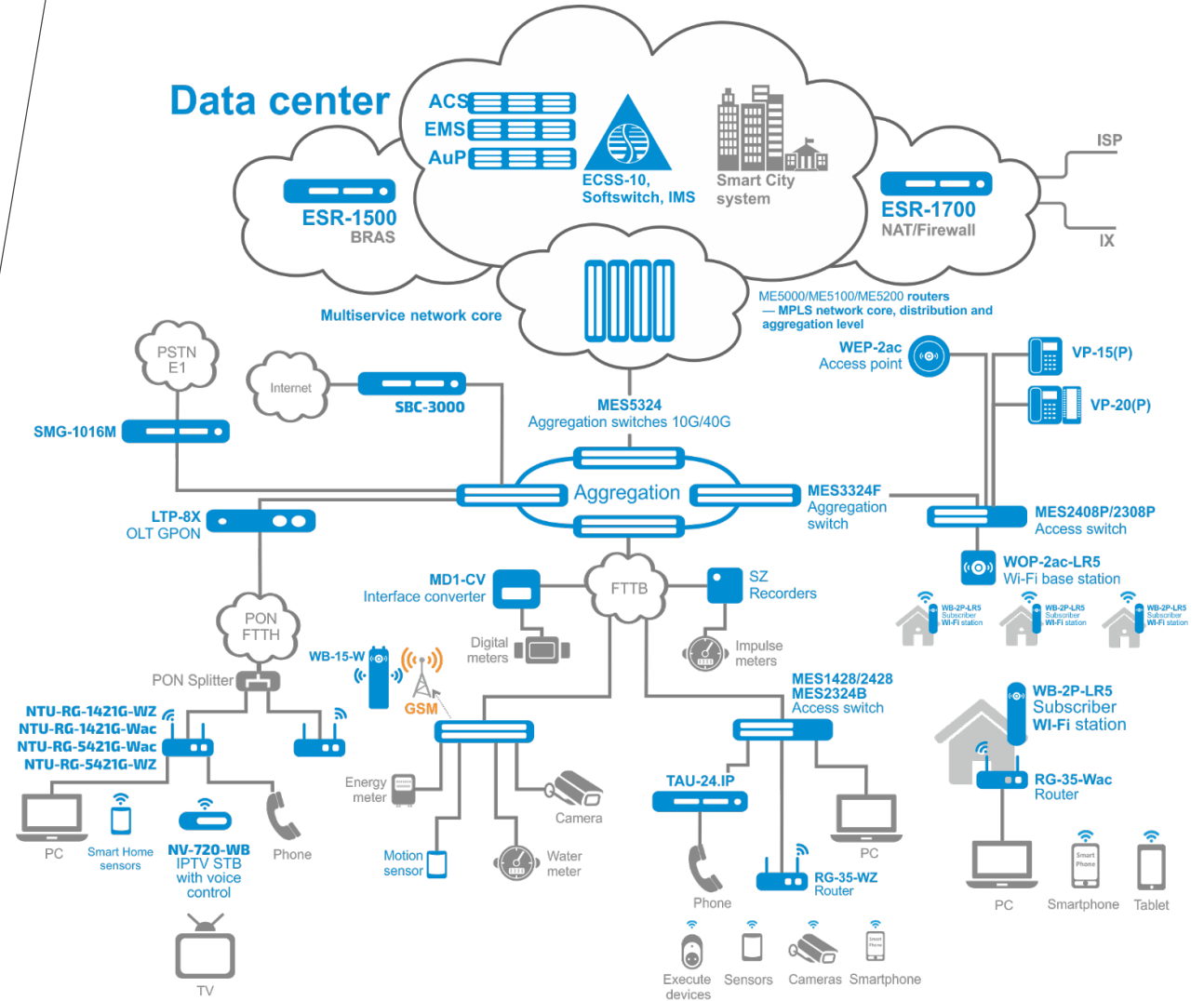
MAINTENANCE

- Technical support
- Service centre
- Software updating
- Repair

ELTEX PRODUCTS

Wide range of solutions for complex projects

- Core routers
- Aggregation and access switches
- Customer Premises Equipment
- xPON
- Wi-Fi access points and a controller
- Monitoring and data collection controllers
- MPLS routers of the core, distribution and aggregation level
- Service routers
- Smart home system
- VoIP gateways and Softswitch
- Management systems

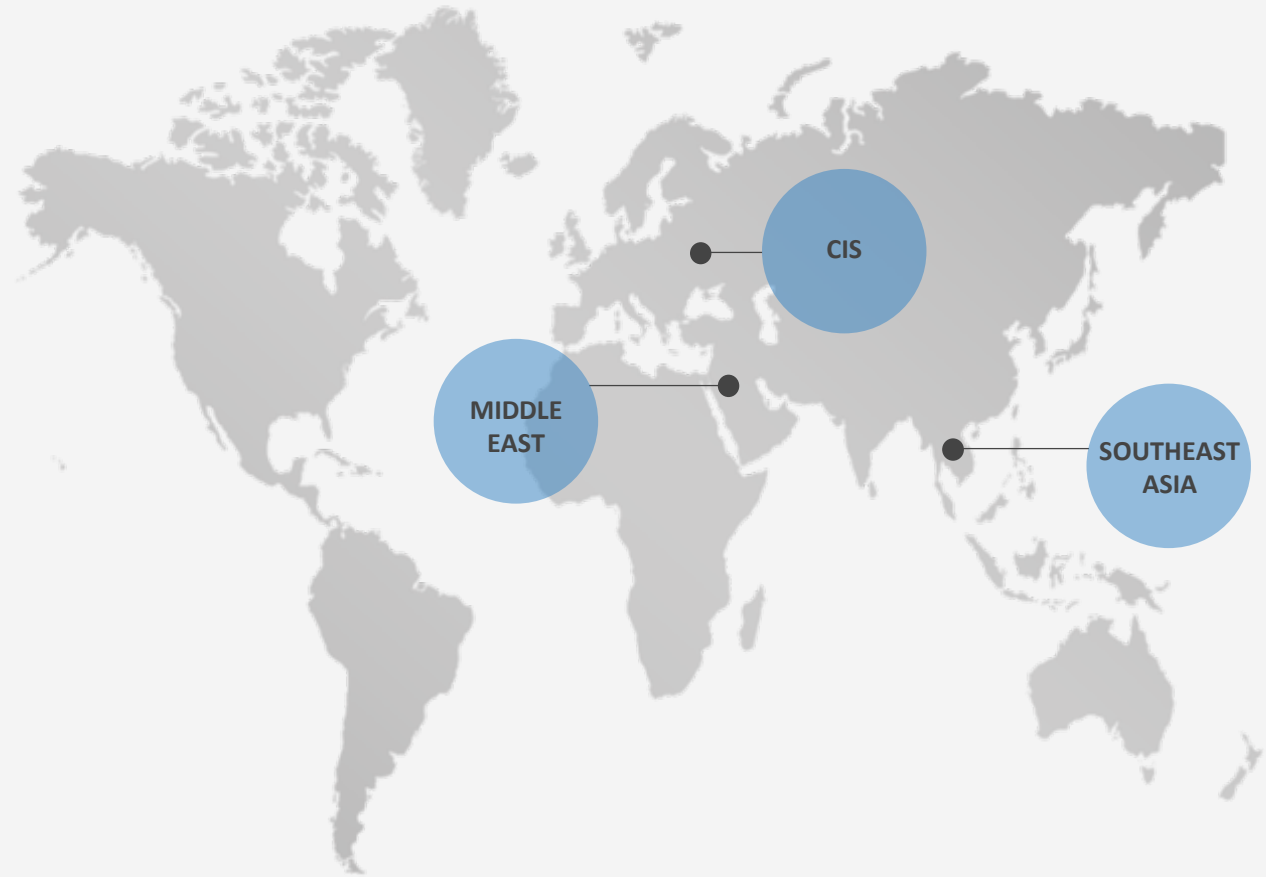


ELTEX products are colored in blue



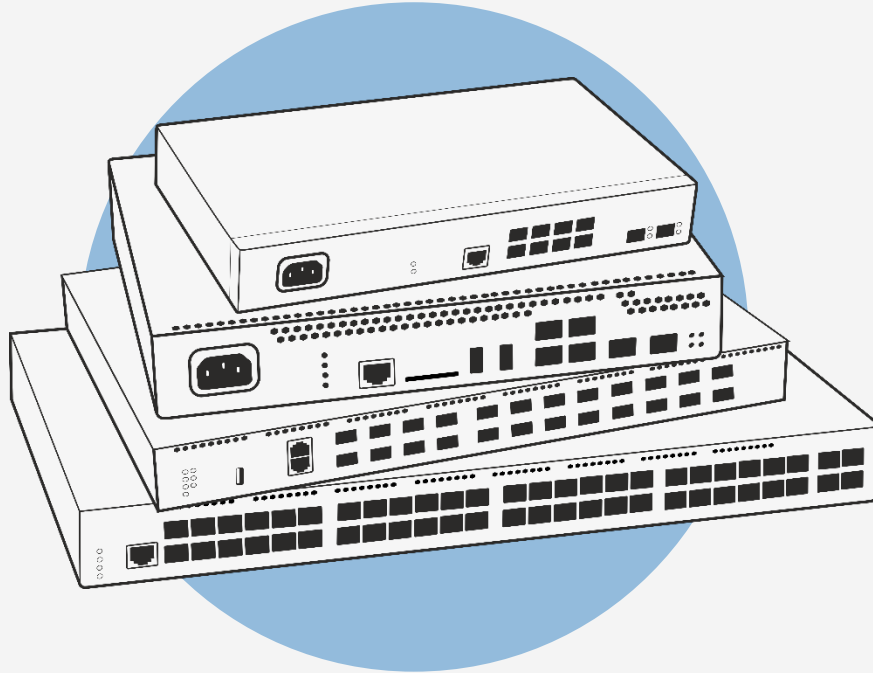
GEOGRAPHY OF PROJECTS

- 8M PON OLT ports
- 3M Ethernet ports
- 6M VoIP ports
- 1,5M IPTV set-top boxes
- 1M TDM ports



CLIENTS





Broadband equipment



Each LAN of the ONT performs a particular service. Servers for such services are located in the carrier network and operate through VLAN.

-

One of the standard schemes for providing a service

APPLICATION OF THE GPON EQUIPMENT

- Bandwidth per one optical fiber: 2.5 Gbit/s — downstream, 1.25 Gbit/s — upstream
- Completely passive elements between station and subscriber's equipment
- High reliability: connection, disconnection or malfunction of one or few subscriber units does not affect the operation of others in any way
- Providing a range of all necessary services to the subscriber over a single fiber
- Network scalability, splitter cascading capability
- No 100 meters limit from the switch to the subscriber when using a copper cable
- Up to 128 subscriber devices to one port of the station terminal connection capability
- Convenient operator network management – ELTEX EMS centralized monitoring and management system and ACS control server for managing subscriber devices via TR-069 protocol





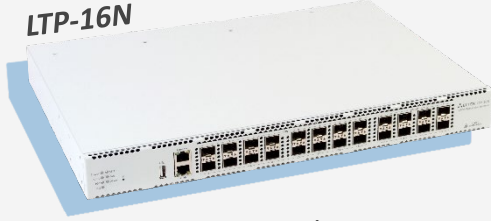
GPON EQUIPMENT



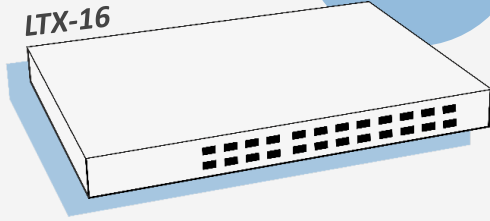
- GPON (2.5/1.25 Gbps)
- 4 GPON ports
- 2 x 10G SFP+, 4 x 1G combo
- 1U



- GPON (2.5/1.25 Gbps)
- 8 GPON ports
- 2 x 10G SFP+, 4x1G, 4 x 1G combo
- 1U



- GPON (2.5/1.25 Gbps)
- 16 GPON ports
- 8 x 10G SFP+ /1G SFP
- 1U



- XGS - PON
- 8/16 XGS-PON ports
- 1/2 x 100G QSFP 28, 1/2 x 40G QSFP+
- 1U

Under
development:
Q2 2023

TECHNICAL FEATURES	LTP-4X	LTP-8X	LTP-16N
Maximum number of ONT	512	1024	2048
PON ports	4	8	16
VLAN table	4000		
MAC table	16000		64000
Splitting ratio	1:128		



GPON EQUIPMENT

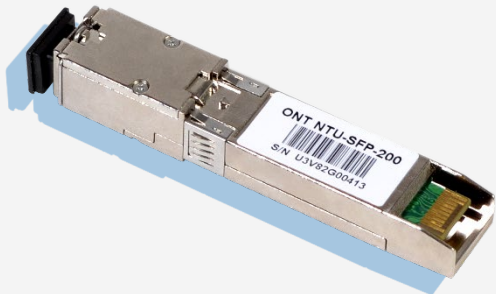
MA4000-PX



- GPON (2.5/1.25 Gbps)
- 1 Tbps
- 8 x 10G SFP+, 4 x 1G
- 9U
- Low power consumption
- 2 separate power supplies

TECHNICAL FEATURES	MA4000-PX
Maximum number of modules	16 (up to 128 GPON ports)
Maximum number of ONT per node	8912
Node bus performance	680 Gbps
PLC8 performance	128 Gbps
PP4X performance	480 Gbps
PLC8 Splitting ratio	1:64

NTU-SFP-200

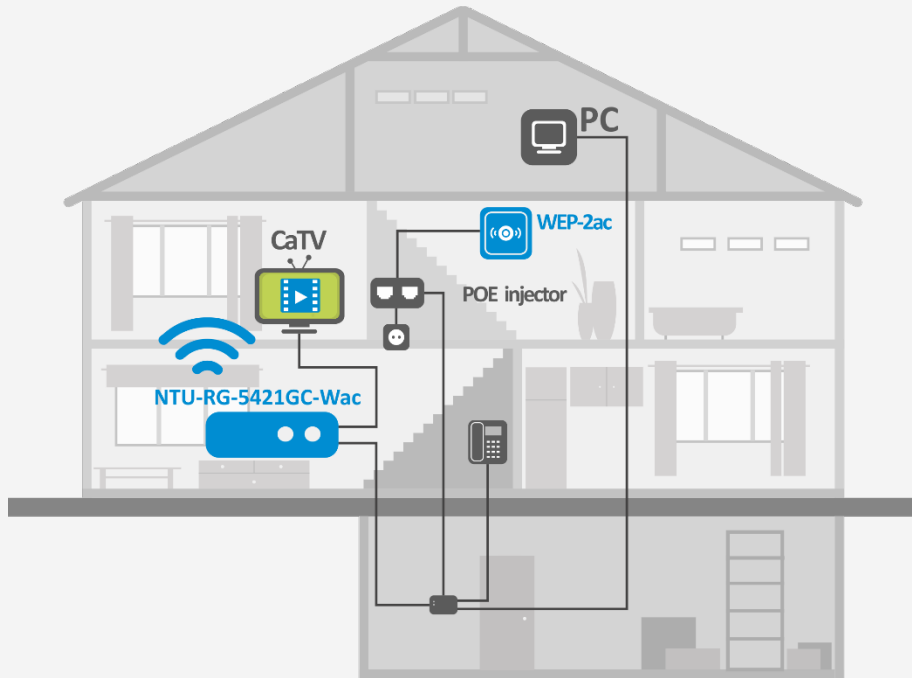


- SFP ONT
- 1 x PON SC/APC
- 1 x 1000BASE-X SFP

TECHNICAL FEATURES	NTU-SFP-200
Maximum data rate	980 Mbps
Number of supported services	up to 12
Optical parameters	Class B+
Transmit Power Range	0,5 .. 5 dBm
Receive Power Range	-28 dBm
MAC table size	4096

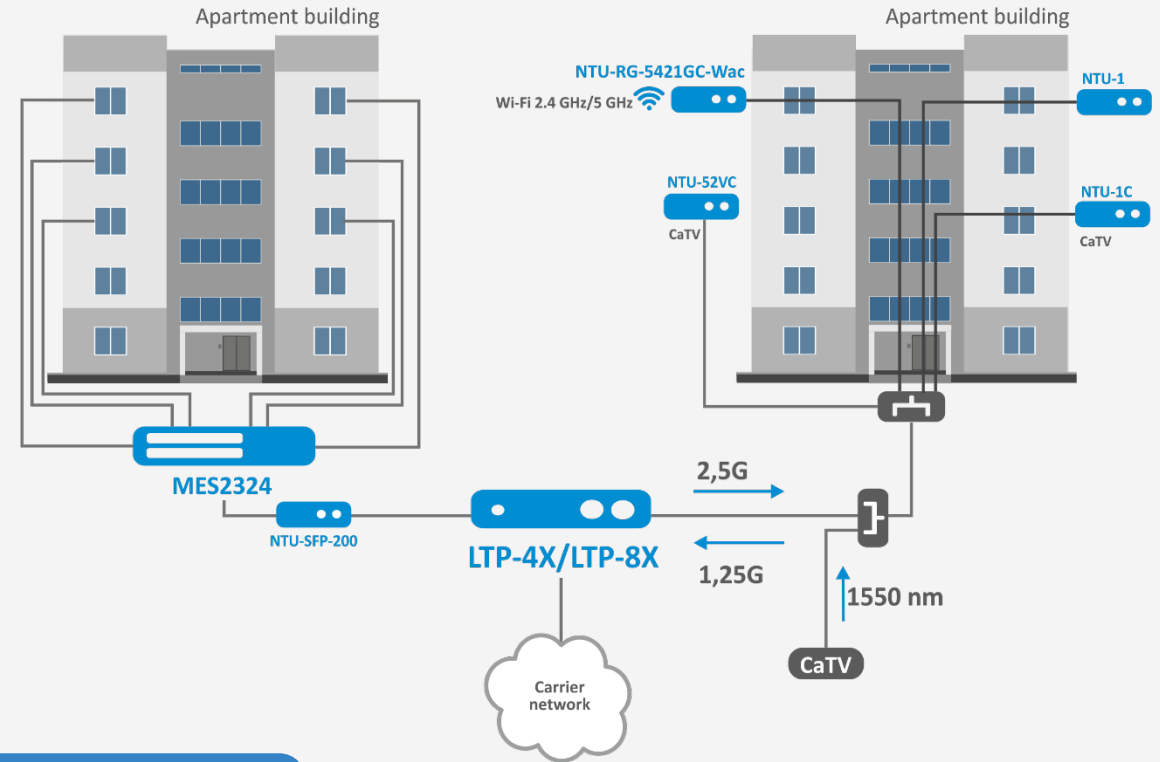


PRIVATE BUILDING AND APARTMENT BUILDING



Private building

- Reduction of passive optical part costs
- High optical fiber transmission rate
- Providing all services via single cable
- Centralized management and monitoring system
- Wide range of subscriber terminals



Apartment building

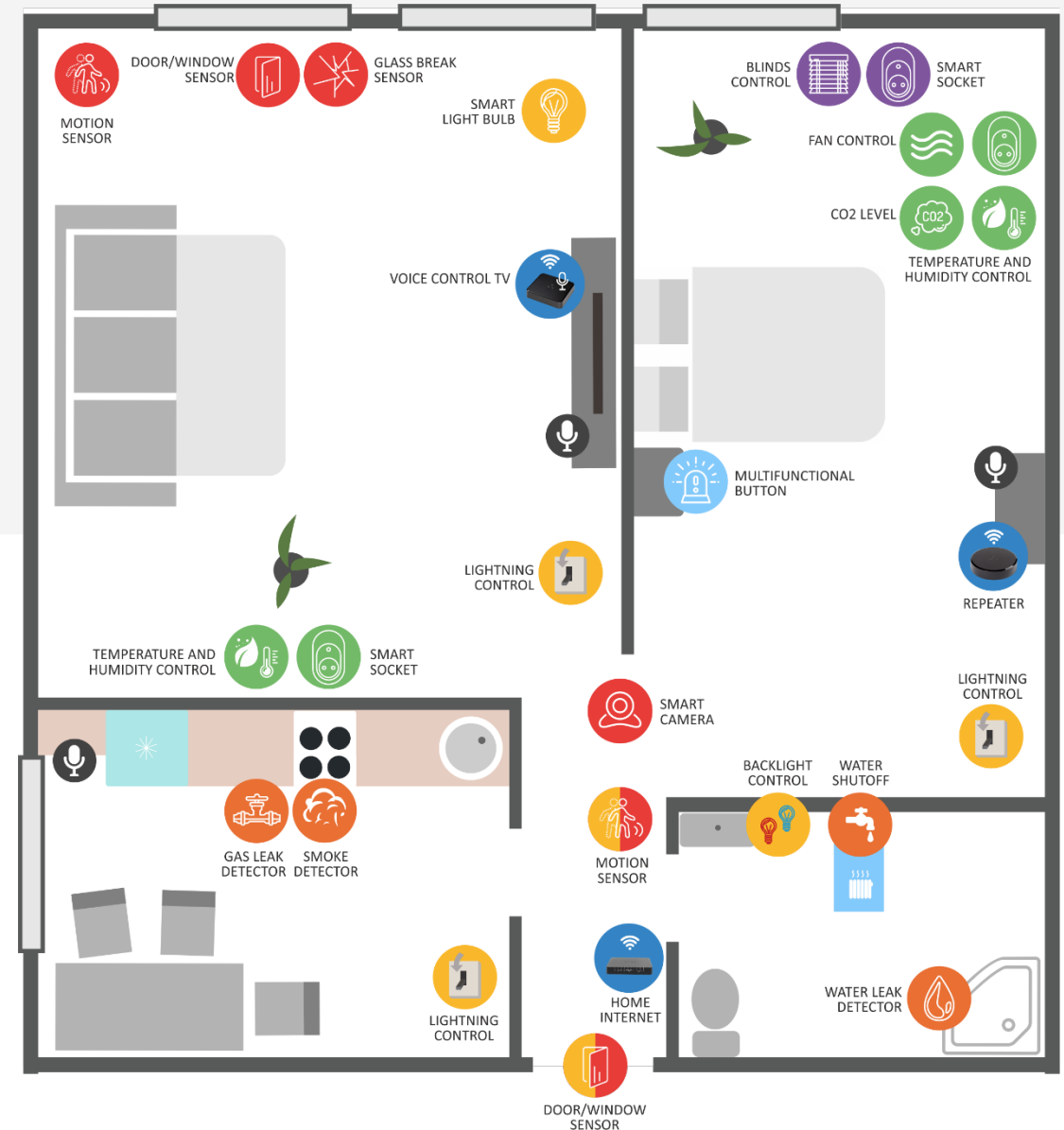
- Reduction of passive optical part costs
- Reduction of network construction due to the use of NTU-SFP-200 — Ethernet switch pairing
- High optical fiber transmission rate
- Various splitting ratios (up to x128)
- Centralized management and monitoring system

SMART HOME



The system uses a **controller** integrated to the subscriber devices, which builds a wireless sensor network controlled by a user from a smartphone, a tablet or via a web browser.

- Potential subscriber binding and service monetization
- Wireless technologies
- Cloud computing
- Standardized protocol
- Compatibility of the system with sensors and actuators of third-party vendors: smart relay, smart socket, smart lamp, sensors for temperature, humidity, smoke, etc.
- Operating with scenarios
- Open API



ADVANTAGES OF THE SMART HOME CONTROLLER

Fast implementation

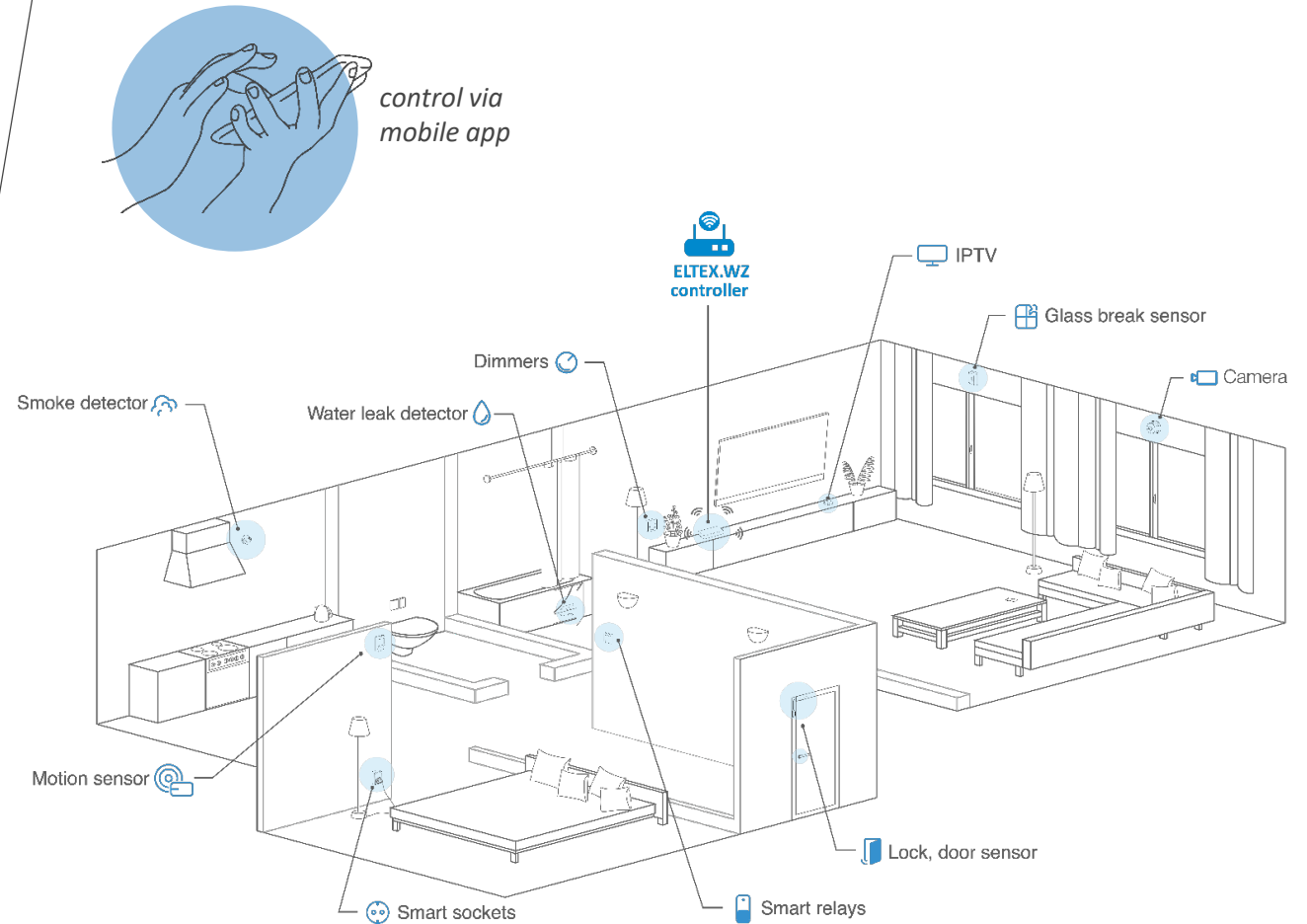
Installation of a small desktop device with further connection of the systems via a wireless network

User convenience

Control of the entire smart home platform via a mobile application using a subscriber device

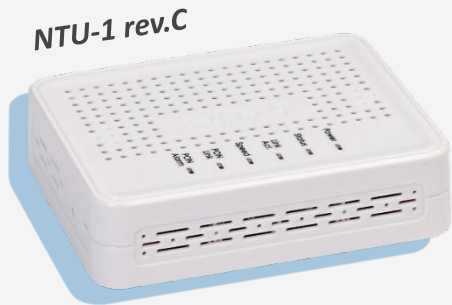
One device efficiency

Providing access to the global and local network, connecting cable TV and telephony, as well as managing smart home devices and sensors is a single effective solution in the form of a subscriber controller



GPON EQUIPMENT

Subscriber terminals



TECHNICAL FEATURES	NTU-1 rev.C	NTU-52V	NTU-52W	NTX-1
WAN	1xGPON			1xXGS-PON
LAN	1x1G	1x100M + 1x1G	1x100M + 1x1G	1x10 GbE
FXS	-	1	-	-
USB	-	1	-	-



GPON EQUIPMENT

Subscriber terminals

CaTV



TECHNICAL FEATURES	NTU-1C	NTU-52VC	NTU-RG-5421GC-Wac
WAN	1xGPON		
LAN	1x1G	1x100M + 1x1G	4x1G
FXS	-	1	
USB	-		1
RF	1		
Wi-Fi	-		802.11n, 2*2 – 300 Mbps, 2.4 GHz 802.11ac, 2*2 – 866 Mbps, 5 GHz



GPON EQUIPMENT

Universal subscriber terminals



TECHNICAL FEATURES	NTU-RG-5421G-Wac	NTU-RG-1421G-Wac	NTU-RG-5440G-Wac	NTU-RG-5402G-W	NTU-RG-5420G-Wac
WAN	1xGPON				
LAN	4x1G				
FXS	1		-	2	-
USB	1	2	1		
Wi-Fi	802.11n, 2*2–300Mbps, 2.4GHz 802.11ac, 2*2–866Mbps, 5GHz	802.11n, 2*2-300Mbps, 2.4GHz 802.11ac, 3*3 -1.3Mbps, 5GHz	802.11n, 2*2–300Mbps, 2.4GHz 802.11ac, 4*4–1733Mbps, 5GHz	802.11n, 2*2–300Mbps, 2.4GHz 802.11ac, 2*2–866Mbps, 5GHz	802.11n, 2*2–300Mbps, 2.4GHz 802.11ac, 2*2–866Mbps, 5GHz



WIRELESS HOME NETWORK COVERAGE EXTENSION

- High data transmission rate due to IEEE 802.11n/ac standards support
- Compatible with devices from other vendors
- Increasing data transmission channel bandwidth due to MIMO 2x2 technology
- Wi-Fi EasyMesh (when operating with EasyMesh devices)



- Dual Band Wi-Fi 802.11a/b/g/n/ac
- 4X1G
- MIMO:
 - 2.4 GHz 2x2
 - 5 GHz 2x2
- TR-069
- EasyMesh support

The advantages of the EasyMesh technology

- Network intelligence: a self-organizing and self-optimizing network collects information and responds to network conditions for maximum performance
- Efficient load balancing: allows the devices to switch to a better connection and avoid interference
- Scalability: allows adding multi-vendor Wi-Fi EasyMesh access points



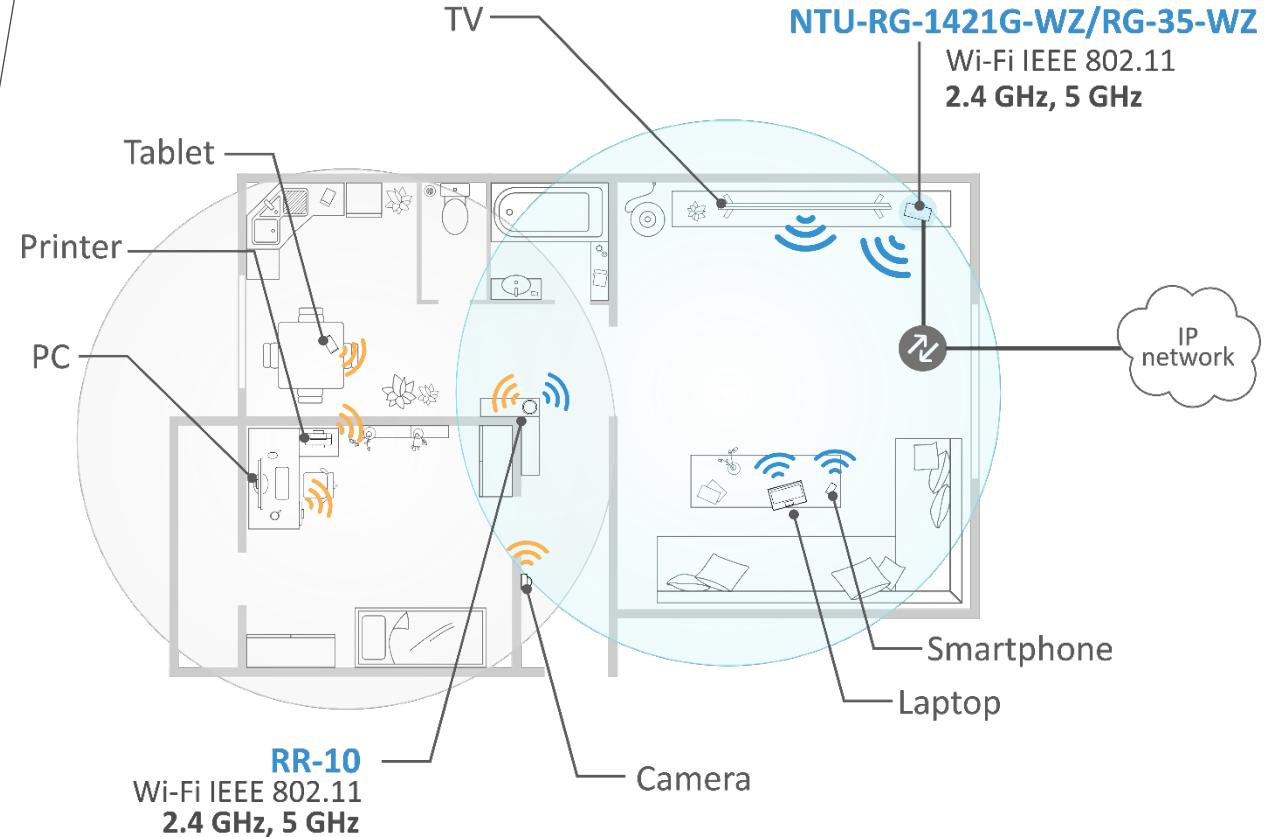
APPLICATION OF THE RR-10 REPEATER.

SOLUTION DIAGRAM

EasyMesh: seamless roaming in every house

The technology allows combining routers and repeaters in unified Wi-Fi network with common network name and a password.

Guaranties moving in Wi-Fi coverage area without disconnection.





GPON EQUIPMENT

Subscriber terminals for Smart Home



TECHNICAL FEATURES	NTU-RG-1421G-WZ	NTU-RG-5421G-WZ	NTU-RG-5440G-WZ	NTU-RG-5420G-WZ
WAN	1xGPON			
LAN	4x1G			
FXS	1		-	
USB	2	1	1	
Wi-Fi	802.11n, 2*2 - 300 Mbps, 2.4 GHz 802.11ac, 3*3 - 1.3 Gbps, 5 GHz	802.11n, 2*2 – 300 Mbps, 2.4 GHz 802.11ac, 2*2 -866 Mbps, 5 GHz	802.11n, 2*2 – 300 Mbps, 2.4 GHz 802.11ac, 4*4 -1733 Mbps, 5 GHz	802.11n, 2*2 – 300 Mbps, 2.4 GHz 802.11ac, 2*2 -866 Mbps, 5 GHz
Smart Home interface	yes			



ACCESS SWITCHES

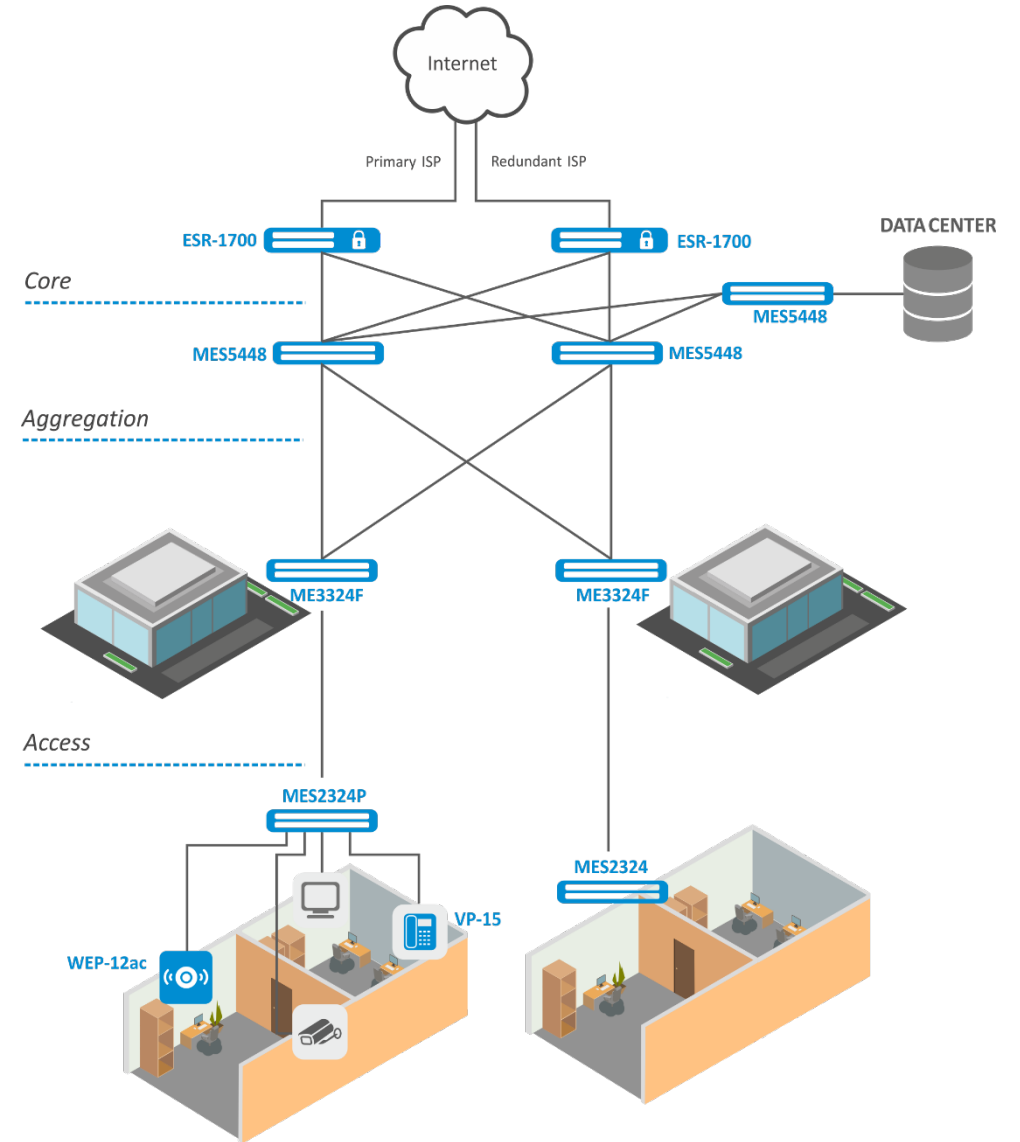


- Copper and optical solutions
- Uplink 1G/10G
- Battery connection
- Industrial models
- From 8 to 48 ports solutions
- AC/DC power supplies
- PoE/PoE+ models with a budget from 65 W to 1.45 kW

BROADBAND SOLUTIONS

Building a distributed fault-tolerant network

- Redundancy of each distribution and aggregation unit (MC-LAG, STP, ERPS)
- Channel redundancy for the Internet connection



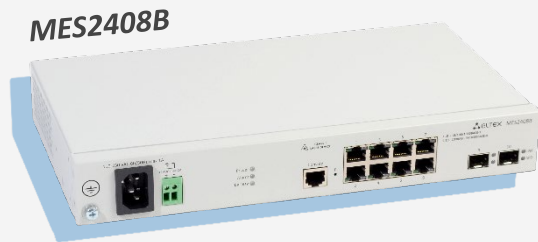
ACCESS SWITCHES



- 8x1G
- 2x1G Combo
- L2
- AC



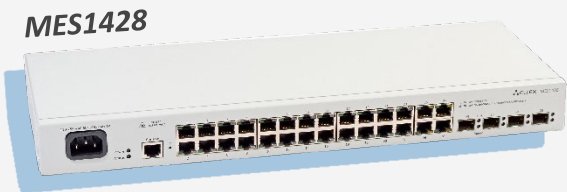
- 8x1G
- 2x1G SFP
- L2
- AC/DC



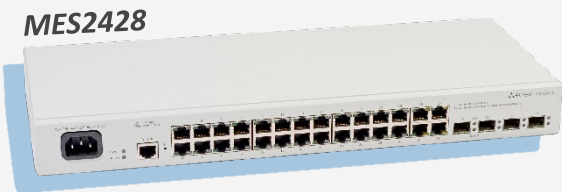
- 8x1G
- 2x1G SFP
- L2
- AC
- Battery connection

TECHNICAL FEATURES	MES2408C	MES2408	MES2408B
Bandwidth	20 Gbps		
Throughput for 64-byte packets	14.88 MPPS		
VLAN table	4094		
MAC table	8192		
L2 Multicast groups	509		
Power supply	230 V AC, 50 Гц	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 12 V DC

ACCESS SWITCHES



- 24x100M
- 4x1G Combo
- L2
- AC/DC



- 24x1G
- 4x1G Combo
- L2
- AC/DC



- 24x1G
- 4x1G Combo
- L2
- AC
- Battery connection

TECHNICAL FEATURES	MES1428	MES2428	MES2428B
Bandwidth	12,8 Gbps	56 Gbps	56 Gbps
Throughput for 64-byte packets	9 MPPS	41.658 MPPS	41.658 MPPS
VLAN table	4094		
MAC table	8192		
L2 Multicast groups	509		
Power supply	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 12 V DC

ACCESS SWITCHES



- 24x1G
- 4x10G SFP+
- L2
- AC/DC



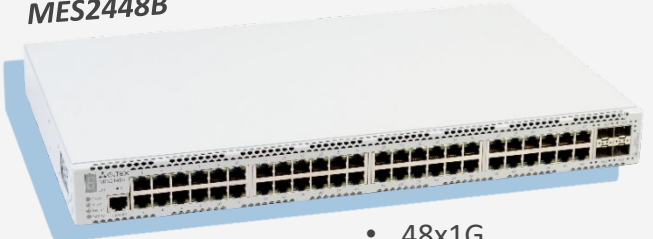
- 24x1G
- 4x10G SFP+
- L2
- AC
- Battery connection

TECHNICAL FEATURES	MES2424	MES2424B
Bandwidth	128 Gbps	
Throughput for 64-byte packets	95.2 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	1023	
Power supply	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 12 V DC

ACCESS SWITCHES



MES2448B



- 48x1G
- 4x10G SFP+
- L2
- AC
- Battery connection

MES2411X

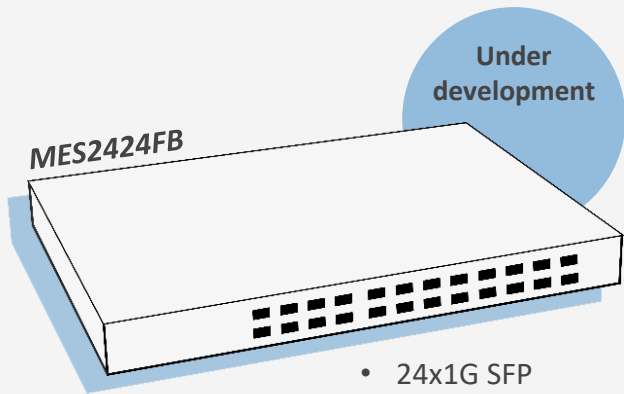


New

- 8x1G
- 11x10G SFP+
- L2
- AC

TECHNICAL FEATURES	MES2448B	MES2411X
Bandwidth	176 Gbps	236 Gbps
Throughput for 64-byte packets	130.9 MPPS	175.5 MPPS
VLAN table	4094	
MAC table	32768	
L2 Multicast groups	4094	
Power supply	230 V AC, 50 Hz / 12 V DC	230 V AC, 50 Hz

ACCESS SWITCHES



- 24x1G SFP
- 4x10G SFP+
- L2
- Battery connection

TECHNICAL FEATURES	MES2424FB
Bandwidth	128 Gbps
Throughput for 64-byte packets	95.2 MPPS
VLAN table	4094
MAC table	16384
L2 Multicast groups	1023
Power supply	230 V AC, 50 Hz / 12 V DC

ACCESS SWITCHES



- 8x1G PoE/PoE+
- 2x1G Combo
- L2
- AC



- 8x1G PoE/PoE+
- 2x1G SFP
- L2
- AC



- 8x1G PoE/PoE+
- 2x1G SFP
- L2
- AC

Optimal for video surveillance networks

TECHNICAL FEATURES	MES2408CP	MES2408P	MES2408PL
Bandwidth	20 Gbps		
Throughput for 64-byte packets	14.88 MPPS		
VLAN table	4094		
MAC table	8192		
L2 Multicast groups	509		
Power supply	230 V AC, 50 Hz	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz

ACCESS SWITCHES

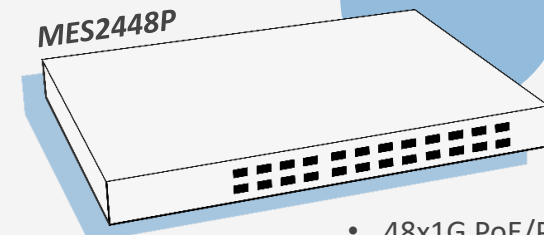


- 24x1G PoE/PoE+
- 4x1G Combo
- L2
- AC/DC



- 24x1G PoE/PoE+
- 4x10G SFP+
- L2
- AC

New



- 48x1G PoE/PoE+
- 4x10G SFP+
- L2
- AC

Under development

Optimal for video surveillance networks

TECHNICAL FEATURES	MES2428P	MES2424P	MES2448P
Bandwidth	56 Gbps	128 Gbps	176 Gbps
Throughput for 64-byte packets	41.658 MPPS	95.2 MPPS	130.9 MPPS
VLAN table	4094	4094	4094
MAC table	8192	16384	32768
L2 Multicast groups	509	1023	4094
Power supply	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz	230 V AC, 50 Hz

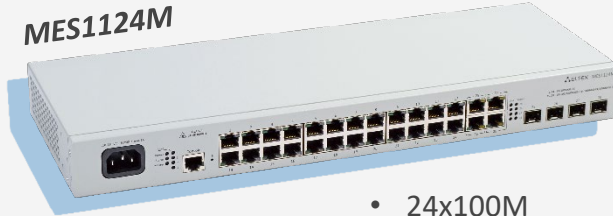


ACCESS SWITCHES



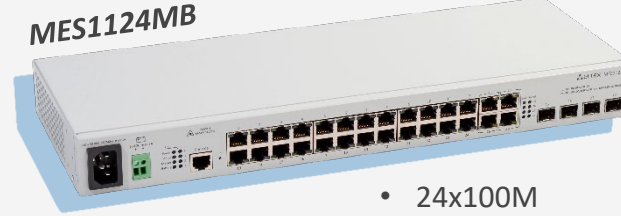
FAST ETHERNET

MES1124M



- 24x100M
- 4x1G Combo
- L2
- AC/DC

MES1124MB



- 24x100M
- 4x1G Combo
- L2
- AC
- Battery connection

TECHNICAL FEATURES	MES1124M	MES1124MB
Bandwidth	12.8 Gbps	
Throughput for 64-byte packets	9 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	1023	
Stacking	up to 3 devices	
Power supply	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 12 V DC

ACCESS SWITCHES

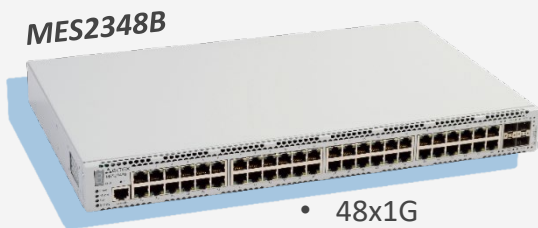


- 8x1G
- 2x1G Combo
- L3
- AC



- 24x1G
- 4x10G SFP+
- L3
- AC

Model with battery is available



- 48x1G
- 4x10G SFP+
- L3
- AC
- Battery connection

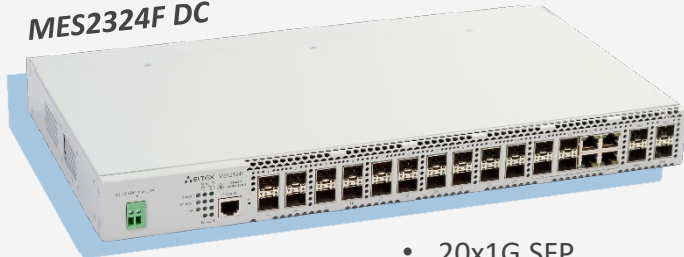
TECHNICAL FEATURES	MES2308R	MES2324	MES2348B
Bandwidth	20 Gbps	128 Gbps	176 Gbps
Throughput for 64-byte packets	14.7 MPPS	92.1 MPPS	130.9 MPPS
VLAN table	4094		
MAC table	16384		
L2 Multicast groups	2046		
ARP tables	820		
Stacking	up to 8 devices		
Power supply	230 V AC, 50 Hz	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 12 V DC



ACCESS/AGGREGATION SWITCHES

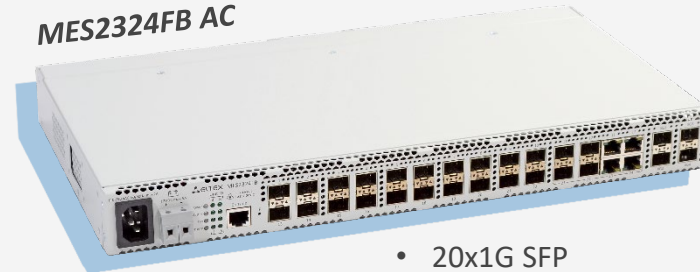
FIBER

MES2324F DC



- 20x1G SFP
- 4x1G Combo
- 4x10G SFP+
- L3
- DC

MES2324FB AC



- 20x1G SFP
- 4x1G Combo
- 4x10G SFP+
- L3
- AC
- Battery connection

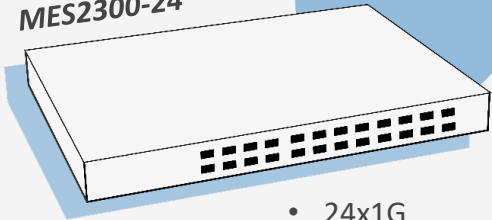
TECHNICAL FEATURES	MES2324F DC	MES2324FB AC
Bandwidth	128 Gbps	
Throughput for 64-byte packets	92.1 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	2046	
ARP tables	820	
Stacking	up to 8 devices	
Power supply	48 V DC	230 V AC, 50 Hz / 12 V DC

ACCESS SWITCHES



MES2300-24

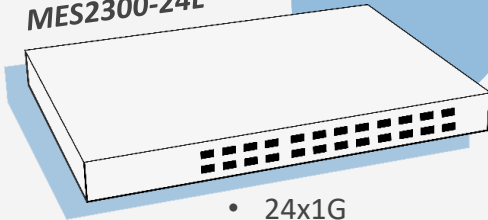
Under development



- 24x1G
- 4x10G SFP+
- L3
- AC/DC

MES2300-24L

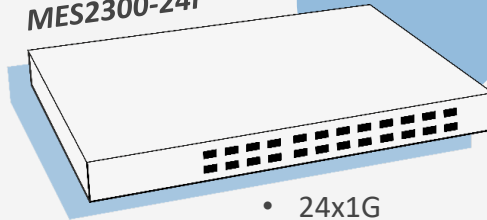
Under development



- 24x1G
- 4x10G SFP+
- L3
- AC/DC

MES2300-24F

Under development



- 24x1G
- 4x10G SFP+
- L3
- AC/DC

TECHNICAL FEATURES	MES2300-24	MES2300-24L	MES2300-24F
Bandwidth	128 Gbps		
Throughput for 64-byte packets	92.1 MPPS		
VLAN table	4094		
MAC table	16384		
L2 Multicast groups	2046		
ARP tables	820		
Stacking	up to 8 devices		
Power supply	230 V AC, 50 Hz / 48 V DC		

INDUSTRIAL SWITCHES



MES3508



- 8x1G
- 2x1G Combo
- L3
- Industrial
- DC

MES3508P



- 8x1G PoE/PoE+
- 2x1G Combo
- L3
- Industrial
- DC



MES3510P



- 8x1G PoE/PoE+
- 4x1G SFP
- L3
- Industrial
- DC



TECHNICAL FEATURES	MES3508	MES3508P	MES3510P
Bandwidth	20 Gbps		24 Gbps
Throughput for 64-byte packets	14 MPPS	14.88 MPPS	17.8 MPPS
VLAN table	4094		
MAC table	16384		
L2 Multicast groups	4088		
ARP tables	4023		
Stacking	not supported		
Power supply	48 V DC		

PROTECTION
CLASS
IP30

INDUSTRIAL SWITCHES



- 24x1G
- 4x1G Combo
- L3
- AC/DC

TECHNICAL FEATURES	MES2328I
Bandwidth	56 Gbps
Throughput for 64-byte packets	41.6 MPPS
VLAN table	4094
MAC table	16384
L2 Multicast groups	2046
ARP tables	820
Stacking	up to 8 devices
Power supply	230 V AC, 50 Hz / 48 V DC

INDUSTRIAL SWITCHES



- Advances L2 features
- Multicast support (IGMP Snooping, MVR)
- Advanced security features (L2-L4 ACL, IP Source Guard, Dynamic ARP Inspection, etc.)
- IP Source Guard, Dynamic ARP Inspection, etc.

TECHNICAL FEATURES	MES3708P
Bandwidth	20 Gbps
Throughput for 64-byte packets	14.88 MPPS
VLAN	4094
MAC table	8192
L2 Multicast groups	509
Buffer memory	512 KB
RAM (DDR3)	256 MB
ROM (SPI Flash)	32 MB
Power supply	230 V AC / 50 Hz



MES3708P
eltex-co.com

Solution for the
“Smart Poles” project



! PROTECTION
CLASS
IP55



ACCESS SWITCHES



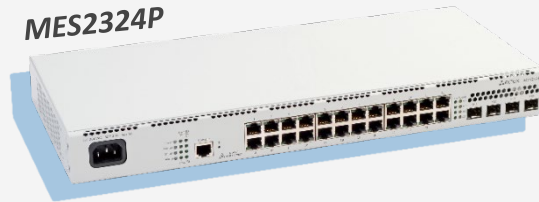
PoE

MES2308P



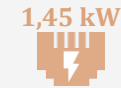
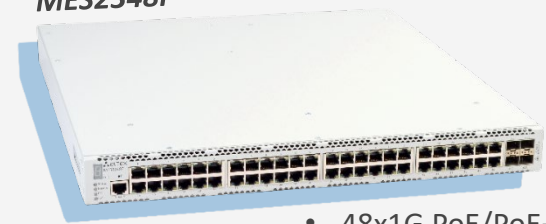
- 8x1G PoE/PoE+
- 2x1G SFP
- 2x1G
- L3
- AC/DC

MES2324P



- 24x1G PoE/PoE+
- 4x10G SFP+
- L3
- AC

MES2348P



- 48x1G PoE/PoE+
- 4x10G SFP+
- L3
- AC/DC

TECHNICAL FEATURES	MES2308P	MES2324P	MES2348P
Bandwidth	24 Gbps	128 Gbps	176 Gbps
Throughput for 64-byte packets	17.7 MPPS	93.1 MPPS	130.9 MPPS
VLAN table	4094		
MAC table	16384		
L2 Multicast groups	2046		
ARP tables	820		
Stacking	up to 8 devices		
Power supply	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 48 V DC	230 V AC, 50 Hz / 48 V DC



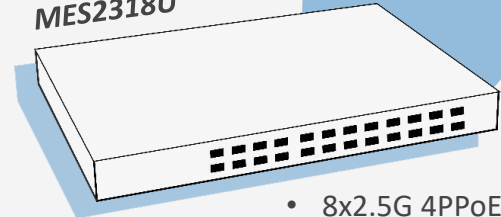
ACCESS SWITCHES



PoE

MES2318U

Under development



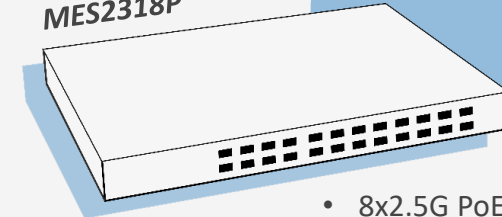
480 W



- 8x2.5G 4PPoE
- 2x10G SFP+
- L3
- Up to 60 W per port
- AC

MES2318P

Under development



240 W



- 8x2.5G PoE/PoE+
- 2x10G SFP+
- L3
- Up to 30 W per port
- AC

TECHNICAL FEATURES	MES2318U	MES2318P
Bandwidth	80 Gbps	
Throughput for 64-byte packets	59.5 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	2046	
ARP tables	820	
Stacking	up to 8 devices	
Power supply	230 V AC, 50 Hz	



AGGREGATION SWITCHES

- From 8 to 48 ports
- L3 functionality
- Stacking up to 8 devices
- Hot-swappable redundant power supplies
- Data center functionality*



* available not for all models



AGGREGATION SWITCHES



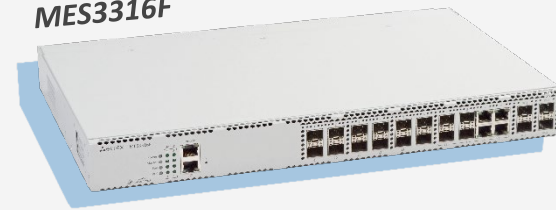
1G -> 10G

MES3308F



- 4x1G SFP
- 4x1G Combo
- 4x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- AC/ DC
- Up to 2 power modules

MES3316F



- 12x1G SFP
- 4x1G Combo
- 4x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- AC/ DC
- Up to 2 power modules

TECHNICAL FEATURES	MES3308F	MES3316F
Bandwidth	96 Gbps	112 Gbps
Throughput for 64-byte packets	71 MPPS	83 MPPS
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	4088	
ARP tables	4023	
Stacking	up to 8 devices	
Power supply	230 V AC, 50 Hz / 48 V DC	

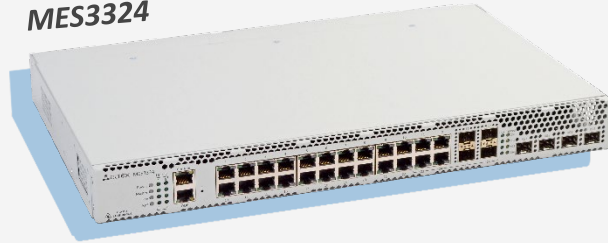


AGGREGATION SWITCHES



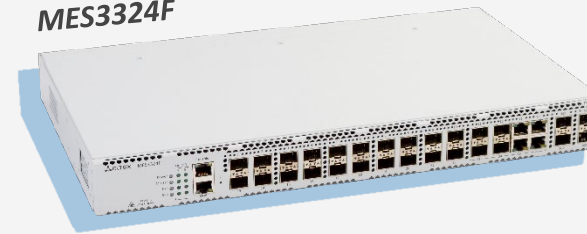
1G -> 10G

MES3324



- 20x1G
- 4x1G Combo
- 4x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- AC/DC
- Up to 2 power modules

MES3324F



- 20x1G SFP
- 4x1G Combo
- 4x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- AC/ DC
- Up to 2 power modules

TECHNICAL FEATURES	MES3324	MES3324F
Bandwidth	128 Gbps	
Throughput for 64-byte packets	95 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	4088	
ARP tables	4023	
Stacking	up to 8 devices	
Power supply	230 V AC, 50 Hz / 48 V DC	

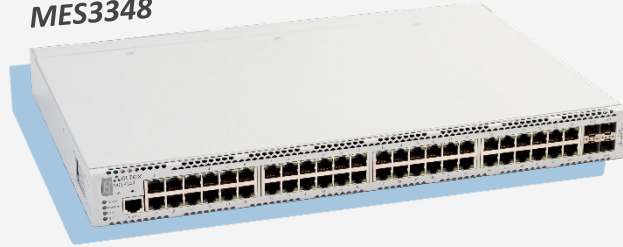


AGGREGATION SWITCHES



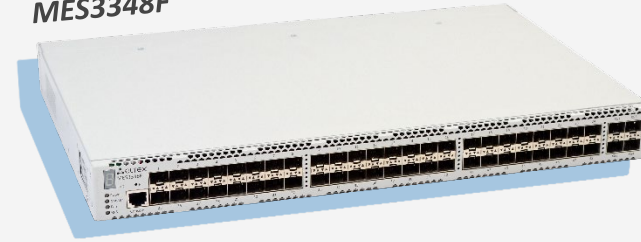
1G -> 10G

MES3348



- 48x1G
- 4x10G SFP+
- L3
- AC/ DC
- Up to 2 power modules

MES3348F



- 48x1G SFP
- 4x10G SFP+
- L3
- AC/ DC
- Up to 2 power modules

TECHNICAL FEATURES	MES3348	MES3348F
Bandwidth	176 Gbps	
Throughput for 64-byte packets	130.9 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	4088	
ARP tables	4023	
Stacking	up to 8 devices	
Power supply	230 V AC, 50 Hz / 48 V DC	



AGGREGATION SWITCHES



1G -> 10G

MES3300-24

Under development

- 24x1G
- 4x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- AC/ DC
- Up to 2 power modules

MES3300-24F

Under development

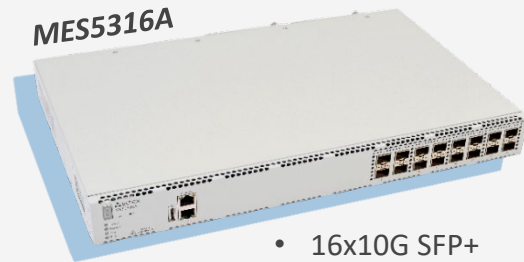
- 20x1G SFP
- 4x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- AC/ DC
- Up to 2 power modules

TECHNICAL FEATURES	MES3300-24	MES3300-24F
Bandwidth	128 Gbps	
Throughput for 64-byte packets	95 MPPS	
VLAN table	4094	
MAC table	16384	
L2 Multicast groups	4088	
ARP tables	4023	
Stacking	up to 8 devices	
Power supply	230 V AC, 50 Hz / 48 V DC	

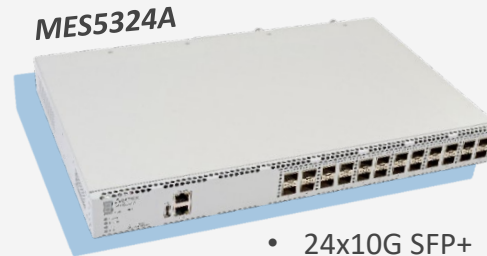


AGGREGATION SWITCHES

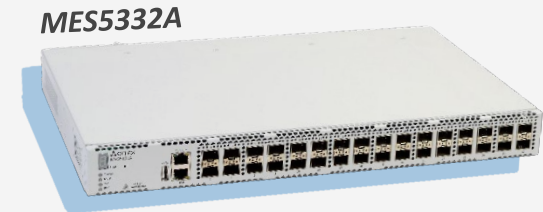
10G



- 16x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- New chips generation
- Up to 2 power modules
- AC/DC



- 24x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- New chips generation
- Up to 2 power modules
- AC/DC



- 32x10G SFP+
- 1x10/100/1000BASE-T (OOB)
- L3
- New chips generation
- Up to 2 power modules
- AC/DC

TECHNICAL FEATURES	MES5316A	MES5324A	MES5332A
Bandwidth	320 Gbps	480 Gbps	640 Gbps
VLAN table	4094		
MAC table	32768		
L2 Multicast groups	4096		
ARP tables	8151		
Stacking	up to 8 devices		
Power supply	230 V AC, 50 Hz / 48 V DC		

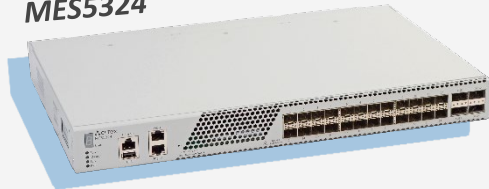


AGGREGATION SWITCHES

10G -> 40/100G

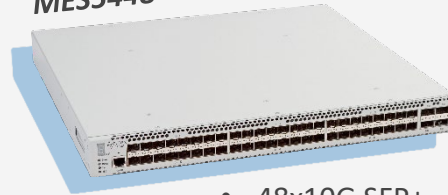


MES5324



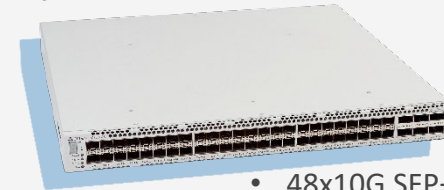
- 24x10G SFP+
- 4x40G QSFP+
- L3
- Up to 2 power modules
- AC/DC

MES5448



- 48x10G SFP+
- 4x40G QSFP+
- L3
- Up to 2 power modules
- AC/DC

MES7048



- 48x10G SFP+
- 6x100G QSFP28
- L3
- Up to 2 power modules
- AC/DC

TECHNICAL FEATURES	MES5324	MES5448	MES7048
Bandwidth	800 Gbps	1,28 Tbps	1,92 Tbps
Throughput for 64-byte packets	512.8 MPPS	943.5 MPPS	1607 MPPS
VLAN table	4094		
MAC table	65536	131072	294912
L2 Multicast groups	4088	2048	2048
ARP tables	7748	6144	
Stacking	up to 8 devices		
Power supply	230 V AC, 50 Hz / 48 V DC		



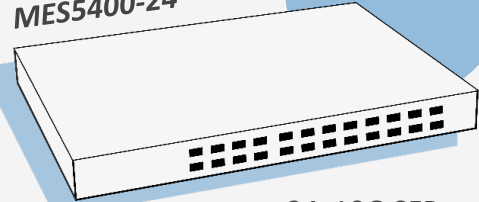
AGGREGATION SWITCHES



10G/25G -> 40/100G

MES5400-24

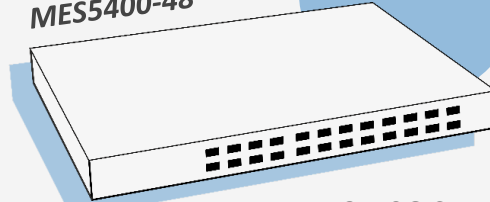
Under development



- 24x10G SFP+
- 6x100G QSFP28

MES5400-48

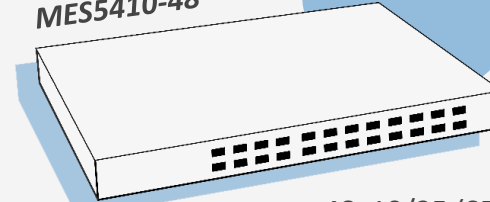
Under development



- 48x10G SFP+
- 6x100G QSFP28

MES5410-48

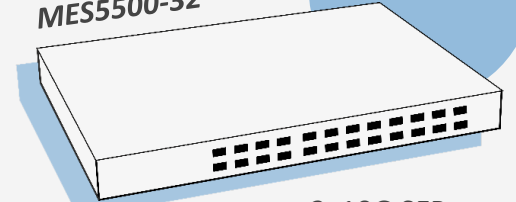
Under development



- 48x10/25 (SFP+)
- 6x100G QSFP28

MES5500-32

Under development



- 2x10G SFP
- 32x100G QSFP28

TECHNICAL FEATURES	MES5400-24	MES5400-48	MES5410-48	MES5500-32
Bandwidth	1.68 Tbps	2.16 Tbps	3.6 Tbps	6.4 Tbps
Throughput for 64-byte packets	1050 MPPS		2380 MPPS	
Buffer memory	12 MB		24 MB	
Stacking	up to 8 devices			
Power supply	230 V AC, 50 Hz / 48 V DC			



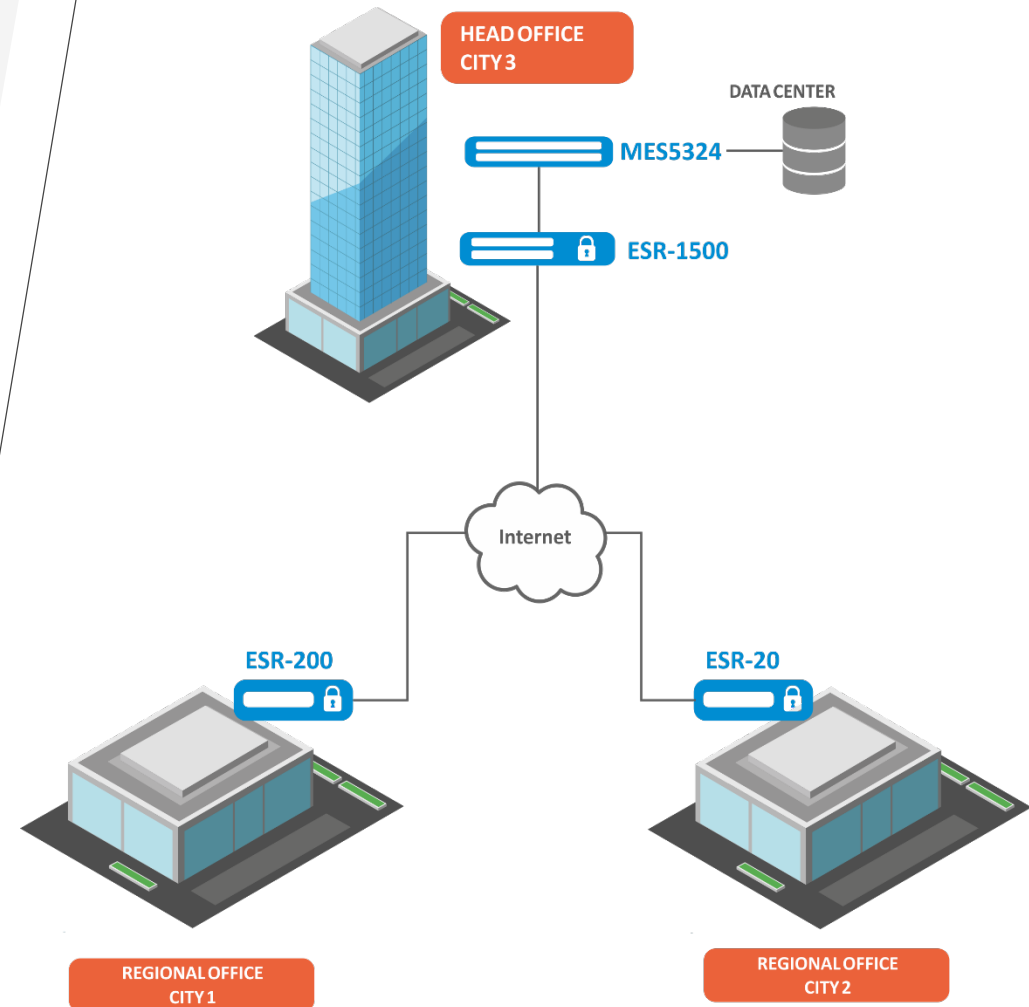
SERVICE GATEWAYS

- Service gateways: Firewall/Nat/IPS/IDS/MPLS
- FSTEC gateways: 4A protection class
- VPN gateways



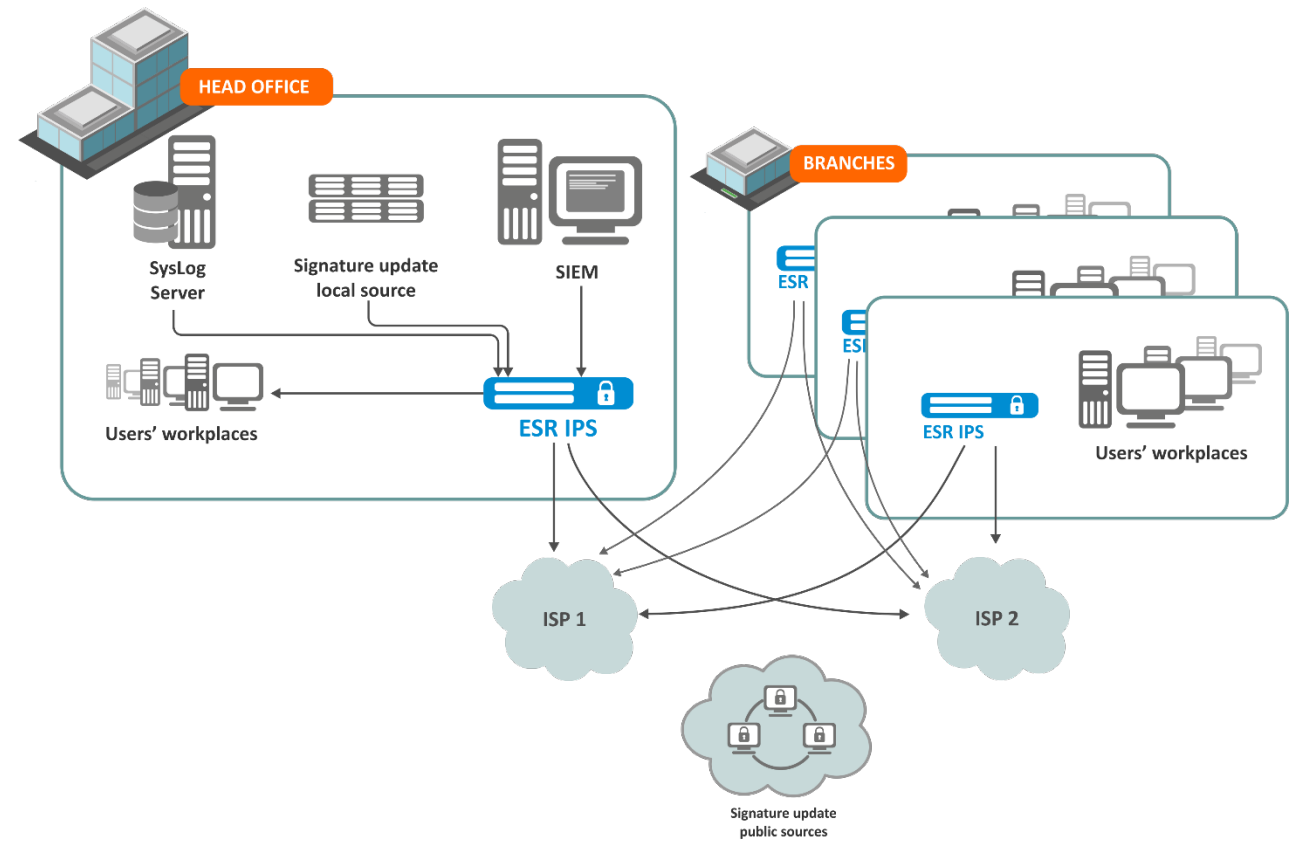
BUILDING GEOGRAPHICALLY DISTRIBUTED NETWORK WITH A BRANCH STRUCTURE

- VPN Encryption for security improvement
- Simple scalability
- Firewall/NAT



BUILDING SECURE NETWORK INFRASTRUCTURE

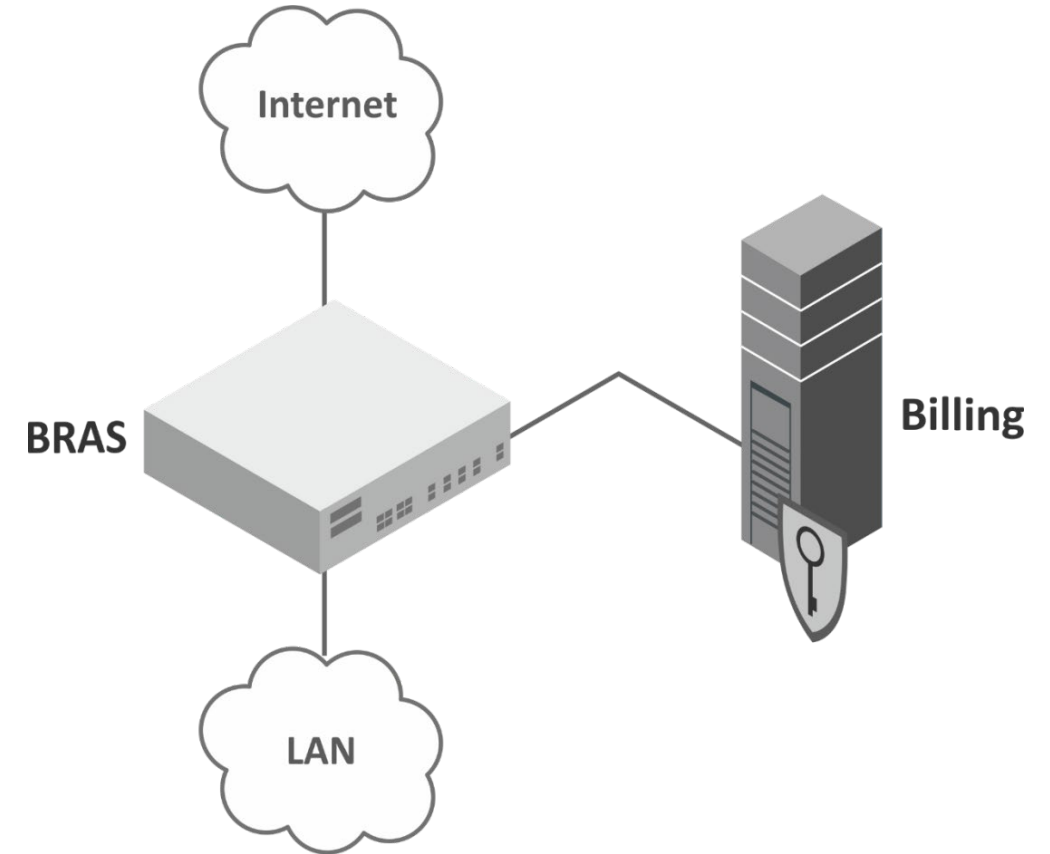
- Detection and prevention of the network attacks
- Flexible rules source configuration allows downloading signatures in Suricata rules format both from global and local network





BUILDING NETWORK WITH BRAS ON THE BASIS OF THE ESR

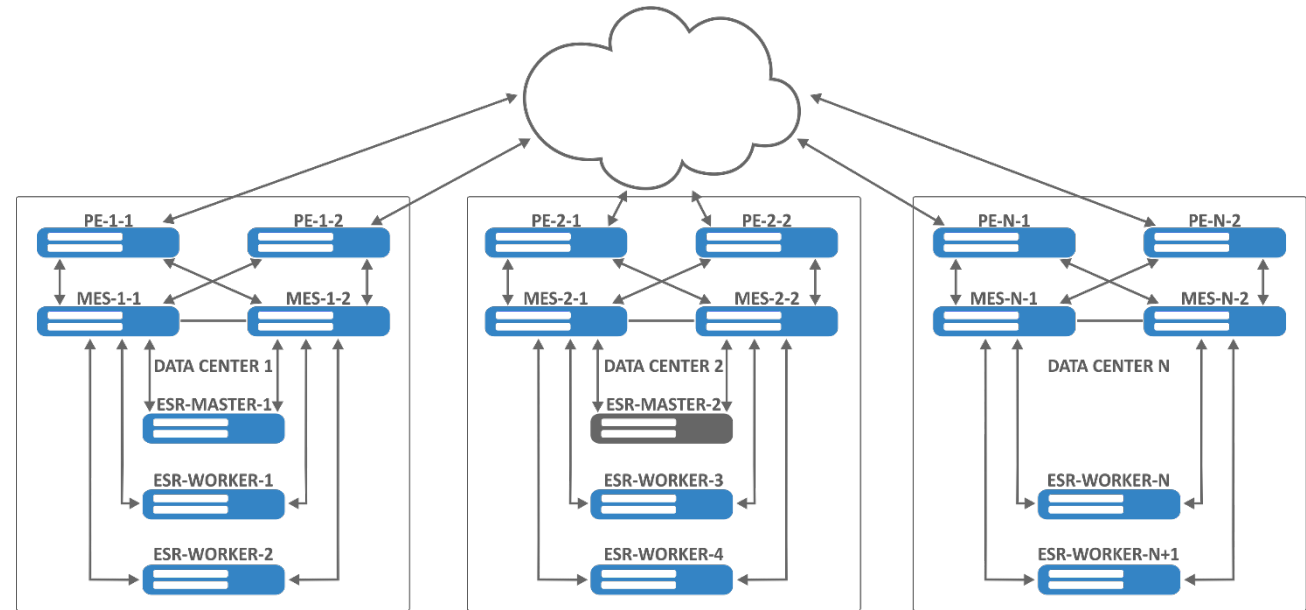
- User authentication
- Traffic filtering and shaping
- User speed limiting and traffic quota
- Users redirection





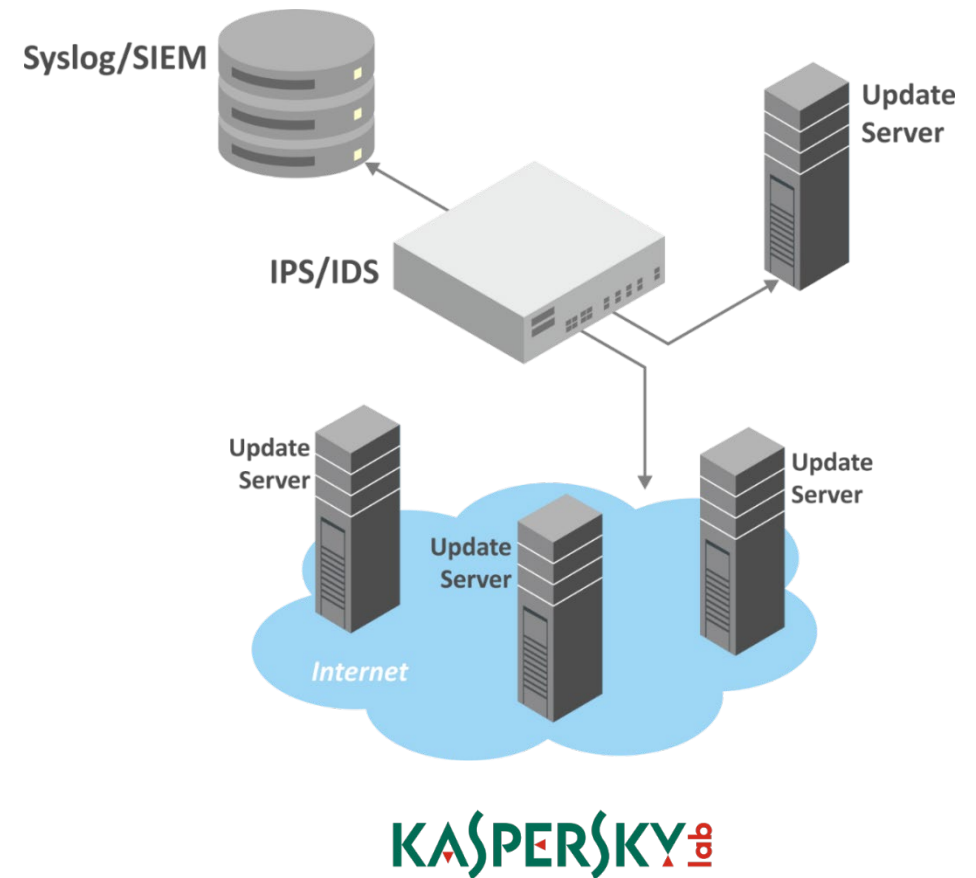
HIGH PERFORMANCE CLUSTER ON THE ESR BASIS

- Combining several ESR into one logical device
- Increasing node performance
- Administrating via unified command interface
- Simple solution scalability
- Increased fault tolerance



STREAM TRAFFIC FILTERING ON THE BASIS OF “KASPERSKY LAB” RULES

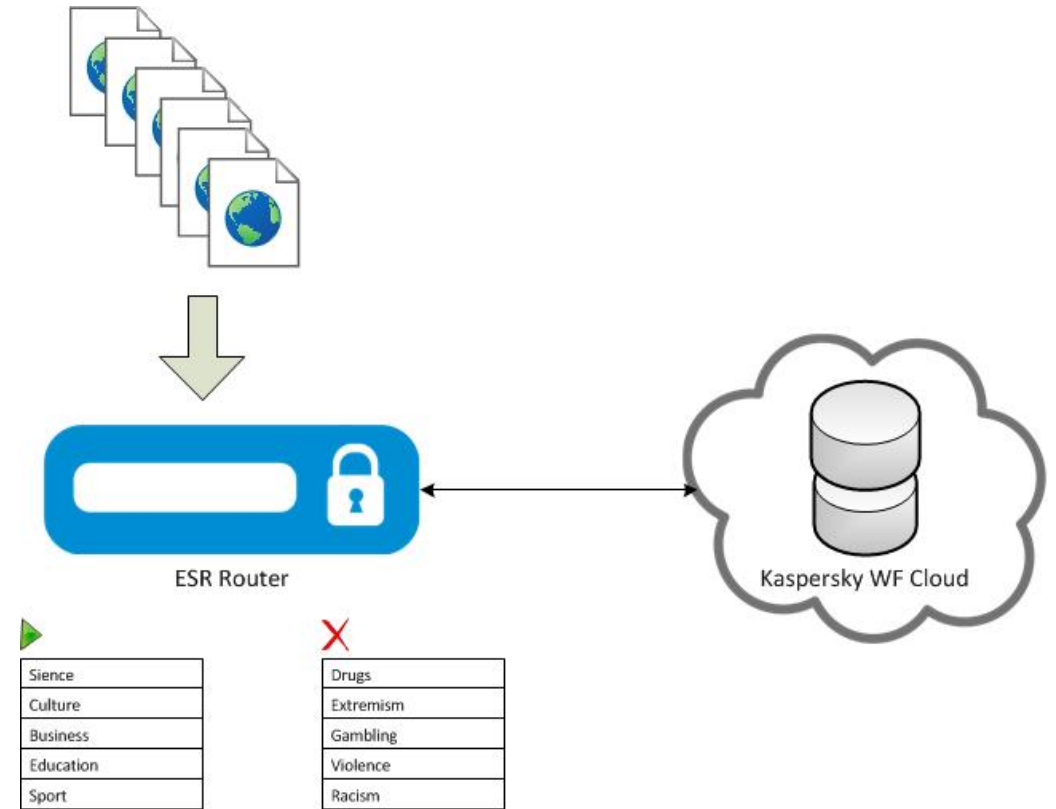
- Rules set by the “Kaspersky Lab” — leading developer in this area
- Constant automatic rules updating online





CONTENT FILTERING BASED ON “KASPERSKY LAB” DATASET

- Russian and foreign websites
- Over 70 categories including various block lists
- Constant automatic data update online

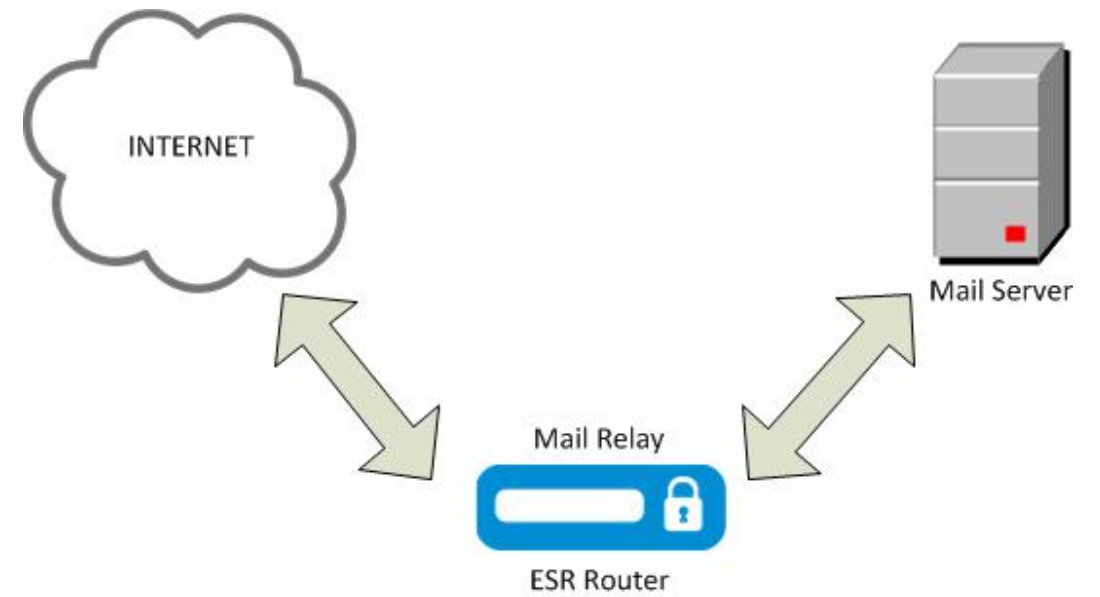


KASPERSKYlab



BUILT-IN ANTI-SPAM MODULE*

- Checking SPF, DKIM, DMARC policies
- Checking mail headers for RFC compliance
- DNSBL and IPBL
- Checking links in mails for fishing

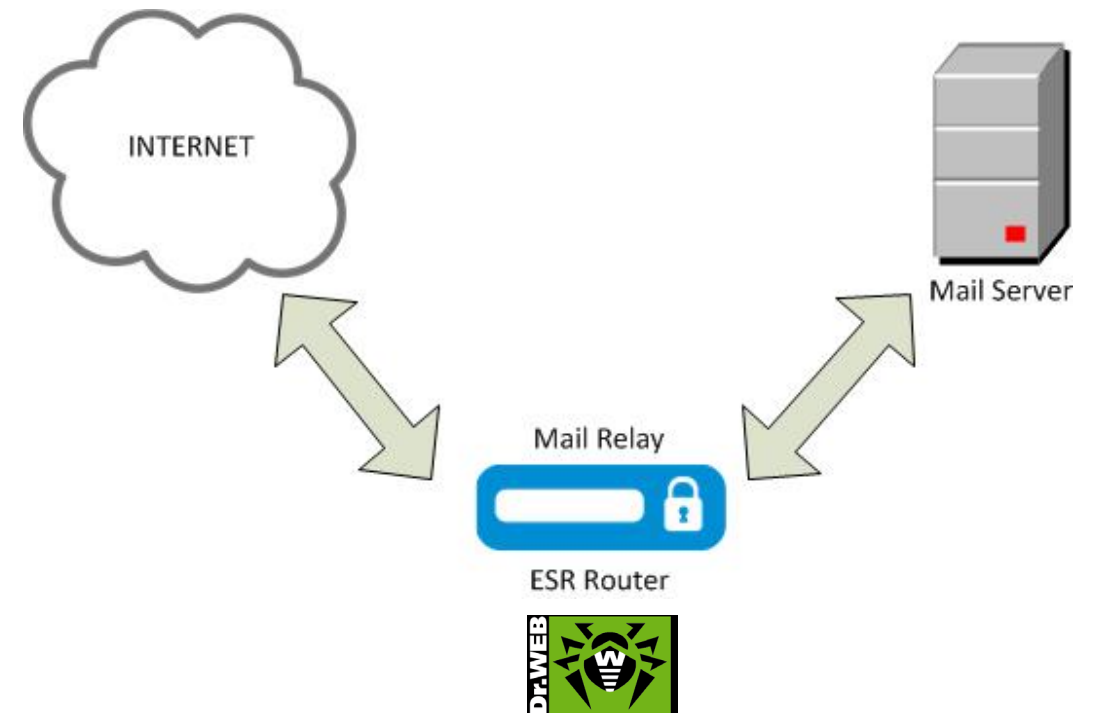


* Under development



STREAM-BASED ANTIVIRUS FOR MAIL ATTACHMENTS*

- Checking mail attachments processed by anti-spam module
- Heuristic and signature analysis
- Constantly updated antivirus database by Dr.Web



* Under development

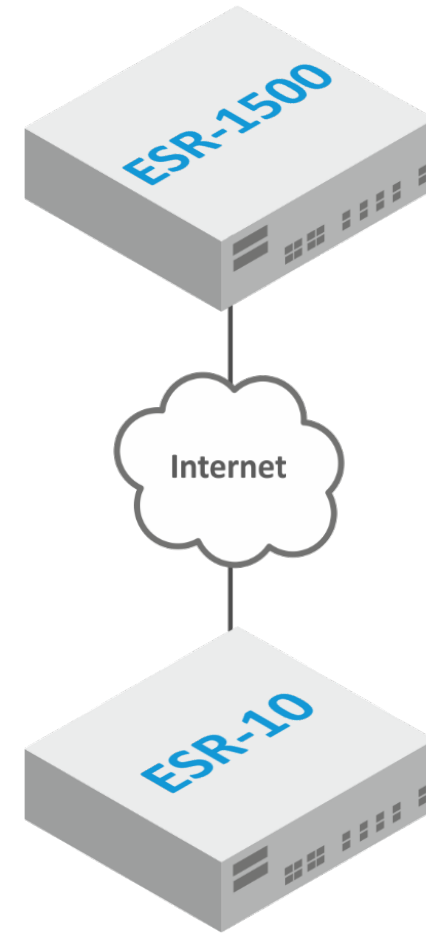


IP-SLA CHANNEL MONITORING

Active performance and IP quality of service measurement
between two ESR service gateways

Calculating communication channel parameters:

- One-way delay
- Round-trip delay
- Jitter
- Packets loss
- Out-of-order delivery

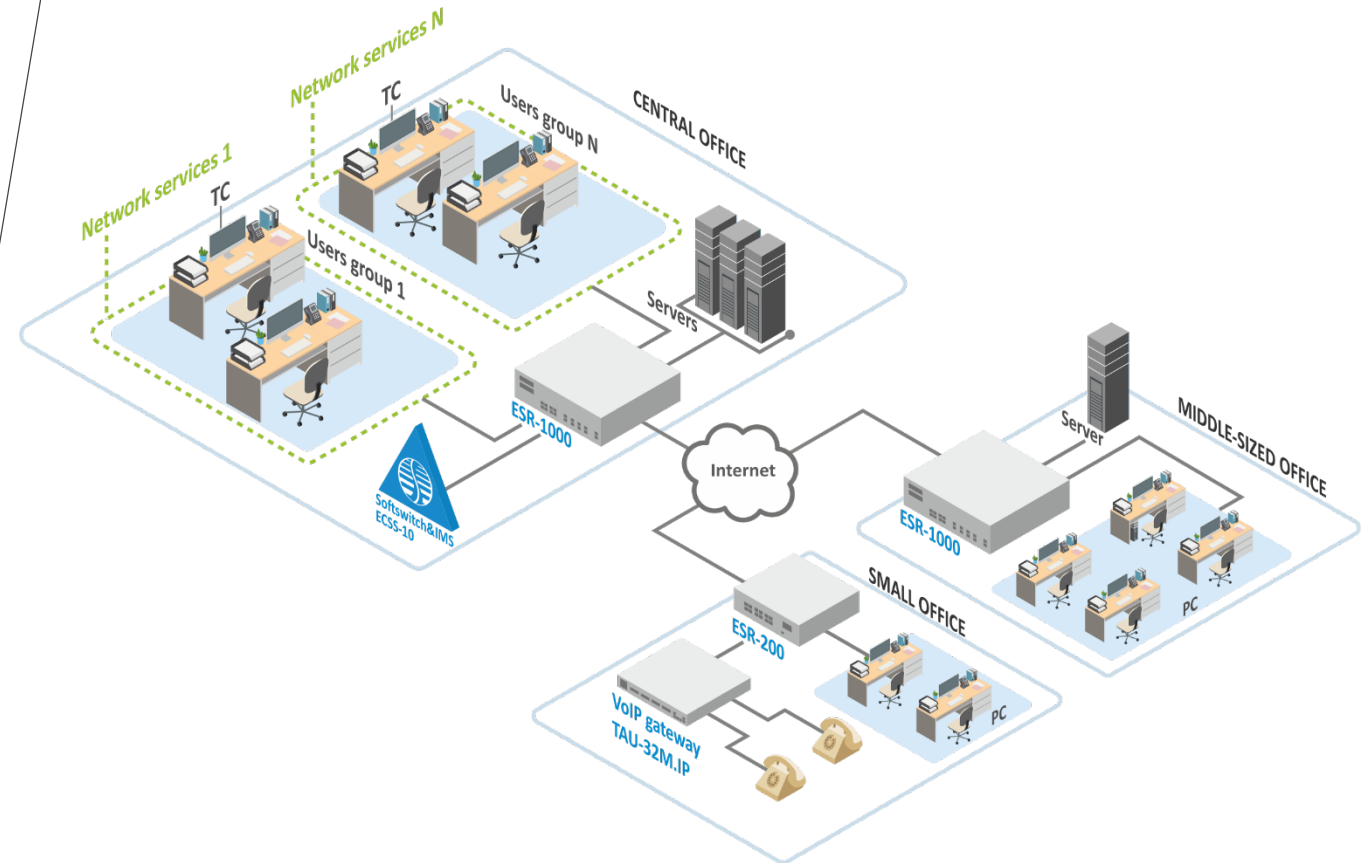




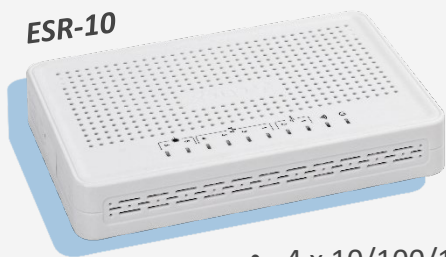
BUILDING SECURED BRANCH NETWORK

Building secured network of any topology: point to point, star, hierarchical tree, partially and fully connected, etc.

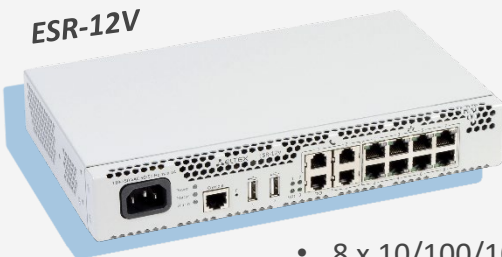
- “All in one” functionality
- Multifunctional service gateway
- Certified VPN gateway
- Certified Firewall
- Fault tolerance
- Advanced L2 features
- All L3 protocol and services support
- RJ45, SFP, SFP+ interfaces
- Easy management: CLI, S-Terra CP 4.2



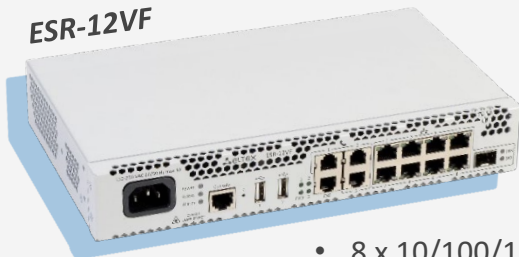
SERVICE GATEWAYS



- 4 x 10/100/1000BASE-T
- 2 x 1000BASE-X SFP
- 2 x USB 2.0
- Console



- 8 x 10/100/1000BASE-T
- 3 x FXS, 1 x FXO
- 2 x USB 2.0
- Console



- 8 x 10/100/1000BASE-T
- 1 x 1000BASE-X SFP
- 3 x FXS, 1 x FXO
- 2 x USB 2.0
- Console

TECHINCAL FEATURES	ESR-10	ESR-12V	ESR-12VF
RAM	1 Gb	1 Gb	
Firewall performance	0.33 Gbps		
IPS/IDS performance	34 Mbps		
IPSec VPN performance	153 Mbps		
VPN tunnels	10		
Concurrent sessions	4K		
FIB size	1M		
Power supply	230 V AC, 50 Hz		

SERVICE GATEWAYS



ESR-20



- 2 x 10/100/1000BASE-T
- 2 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 1 x USB 2.0, 1 x USB 3.0
- 1 slot for SD cards, Console

ESR-21



- 8 x 10/100/1000BASE-T
- 4 x 10/100/1000BASE-X
- 1 x USB 2.0, 1 x USB 3.0
- 1 slot for SD cards, Console
- Serial (RS-232)

TECHINICAL FEATURES	ESR-20	ESR-21
Firewall performance	1.97 Gbps	
IPS/IDS performance	88 Mbps	
IPSec VPN performance	0.52 Gbps	0.53 Gbps
VPN tunnels	250	
Concurrent sessions	256K	
FIB size	1.4M	
Power supply	230 V AC, 50 Hz	

SERVICE GATEWAYS



ESR-100



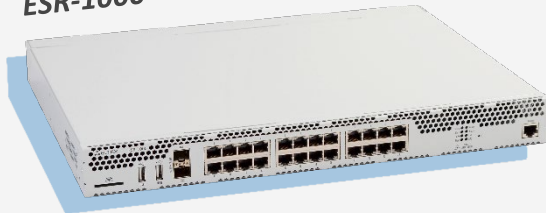
- 4 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 1 x USB 2.0, 1 x USB 3.0
- Console
- Up to 2 power modules

ESR-200



- 4 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 4 x 10/100/1000BASE-T
- 1 x USB 2.0, 1 x USB 3.0
- Console
- Up to 2 power modules

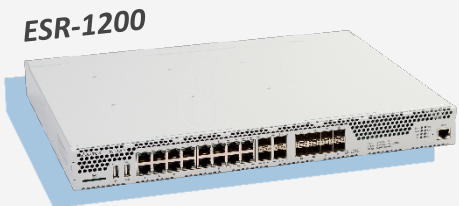
ESR-1000



- 24 x 10/100/1000BASE-T
- 2 x 10GBASE-R SFP+/1000BASE-X SFP
- 2 x USB 2.0
- Console
- Up to 2 power modules

TECHINCAL FEATURES	ESR-100	ESR-200	ESR-1000
Firewall performance	1.28 Gbps	1.92 Gbps	8.78 Gbps
IPS/IDS performance	34 Mbps	43 Mbps	584.89 Mbps
IPSec VPN performance	0.30 Gbps	0.48 Gbps	2.37 Gbps
VPN tunnels	250		500
Concurrent sessions	256K		512K
FIB size	1.4M		1.7M
Power supply	230 V AC, 50 Hz		230 V AC, 50 Hz / 48 V DC

SERVICE GATEWAYS



- 4 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 12 x 10/100/1000BASE-T
- 8 x 10GBASE-R SFP+/1000BASE-X SFP
- 2 x USB 2.0
- Console
- Up to 2 power modules



- 4 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 4 x 10/100/1000Base-T
- 4 x 10GBASE-R SFP+/1000BASE-X SFP
- 2 x USB 2.0
- Console
- Up to 2 power modules



- 4 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 4 x 10/100/1000BASE-T
- 4 x 10GBASE-R SFP+/1000BASE-X SFP
- 2 x 40GBASE-X QSFP+
- 2 x USB 2.0
- Console
- Up to 2 power modules



- 4 x Combo 10/100/1000BASE-T/1000BASE-X SFP
- 8 x 10GBASE-R SFP+/1000BASE-X SFP
- 2 x USB 2.0
- Console

TECHINCAL FEATURES	ESR-1200	ESR-1500	ESR-1511	ESR-1700
Firewall performance	8.78 Gbps	12.33 Gbps	18.01 Gbps	39 Gbps
IPS/IDS performance	584.89 Mbps	759 Mbps	1290 Mbps	3430 Mbps
IPSec VPN performance	2.37 Gbps	3 Gbps	4.66 Gbps	13.6 Gbps
VPN tunnels	500			
Concurrent sessions	512K			
FIB size	1.7M			3.0M
Power supply	230 V AC, 50 Hz / 48 V DC			230 V AC, 50 Hz / 48 V DC

SERVICE GATEWAYS



- 4 x 10/100/1000BASE-T
- 2 x 10GBASE-R SFP+/1000BASE-X
- 1 x USB 3.0
- 1 slot for SD cards, Console



- 8 x 10/100/1000BASE-T
- 8 x 10GBASE-R SFP+/1000BASE-X
- 2 x USB 3.0
- 1 slot for SD cards, Console



- 12 x 1000BASE-X/10GBASE-R/25GBASE-R
- 1 x USB 3.0
- 1 slot for SD cards, Console
- Up to 2 power modules

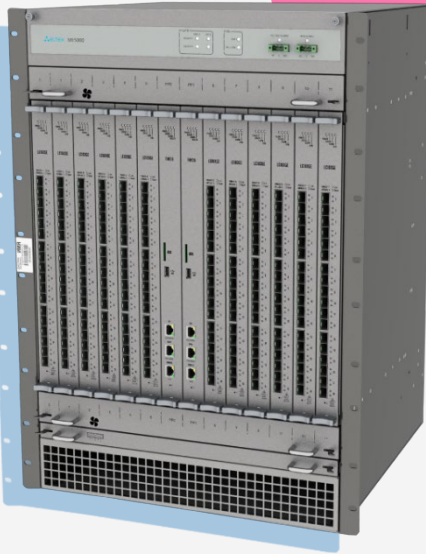
TECHINICAL FEATURES	ESR-30	ESR-3100	ESR-3200
VPN tunnels	250	500	
Concurrent sessions	256K	512K	
FIB size	1.4M	1.7M	3.0M
Power supply	230 V AC, 50 Hz	230 V AC, 50 Hz / 48 V DC	

MPLS ROUTERS



ME5000

New



- 3.0 Tbps, up to 250 Gbps /slot
- 15U
- Up to 2 Fabric Management Cards /chassis
- Up to 12 Line Cards /chassis
- LC18XGE: 18x10GBASE-R (SFP+)
- LC20XGE: 20x10GBASE-R (SFP+)
- LC8XLGE: 4x40GBASE-R (QSFP28), 4x100/40GBASE-R (QSFP28)
- Up to 12K MPLS PW
- Up to 4K bridge domains
- Up to 8K subinterfaces
- Up to 4k VRFs

ME5200



- 32x10GBASE-R (SFP+), 4x 100/40GBASE-R (QSFP28)
- CPU Broadcom XLP308, 1500 MHz, 8 GB RAM
- 800 Gbps, 720 Mpps
- FDB 750K MAC, FIB 4M
- Up to 12K MPLS PW /slot
- Up to 8K bridge domains
- Up to 8K subinterfaces
- Up to 4k VRFs

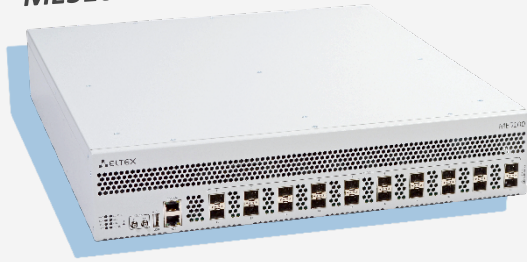
The routers are included in **ME5000** series and have a uniform software and managements interfaces.

ME5000 series devices support a full range of the series functions — IPv4/IPv6 routing, hierarchical QoS, IP Multicast routing and L2/L3 MPLS services.

MPLS ROUTERS



ME5100



- 20x10GBASE-R (SFP+)
- CPU Broadcom XLP308, 1200 MHz, 8 GB RAM
- 200 Gbps, 300 Mpps
- Up to 250K MAC
- FIB 1M
- Up to 12K MPLS PW /slot
- Up to 4K bridge domains
- Up to 4K subinterfaces
- Up to 4k VRFs

ME5100 rev. X



- 16x10GBASE-R (SFP+)
- 4x10GE XFP
- CPU Broadcom XLP308, 1200 MHz, 8 GB RAM
- 200 Gbps, 300 Mpps
- Up to 250K MAC
- FIB 1M
- Up to 12K MPLS PW /slot
- Up to 4K bridge domains
- Up to 4K subinterfaces
- Up to 4k VRFs

The routers are included in **ME5000** series and have a uniform software and managements interfaces.

ME5000 series devices support a full range of the series functions — IPv4/IPv6 routing, hierarchical QoS, IP Multicast routing and L2/L3 MPLS services.

MPLS ROUTERS



L2 FUNCTIONS:

- QinQ support
- Flexible operations with VLAN tags
- Independent bridge domains
- STP/RSTP/MSTP

L3 ROUTING:

- IS-IS (IPv4 and IPv6 protocols)
- OSPFv2, OSPFv3
- BGP4, MP-BGP (IPv4, IPv6, L2VPN, VPNv4, VPNv6)
- BGP routes filtering (route-map, prefix list)
- NSF/GR (Non Stop Forwarding/Graceful Restart)
- ECMP (Equal Cost Multipath)
- VRF (Virtual Routing and Forwarding)
- IP GRE and IP-IP tunnels
- VRRP and DHCP relay agent
- Policy-based routing

MULTICAST:

- PIM-SM/SSM
- IGMP routing v1-v3, SSM mapping, sources/groups filtering
- MSDP
- Anycast RP (PIM or MSDP)
- VRF-lite for all protocols

MPLS:

- LDP L2VPN (VPLS и VPWS)
- BGP L2VPN (VPLS и VPWS)
- BGP L3VPN (VPNv4, VPNv6)
- RSVP-TE

QOS:

- Hierarchical traffic manager
- Shaping on logical interfaces
- Flash processing support
- SP (Strict Priority) and WDRR (Deficit Weighted Round Robin) queuing algorithms
- Priority remarking

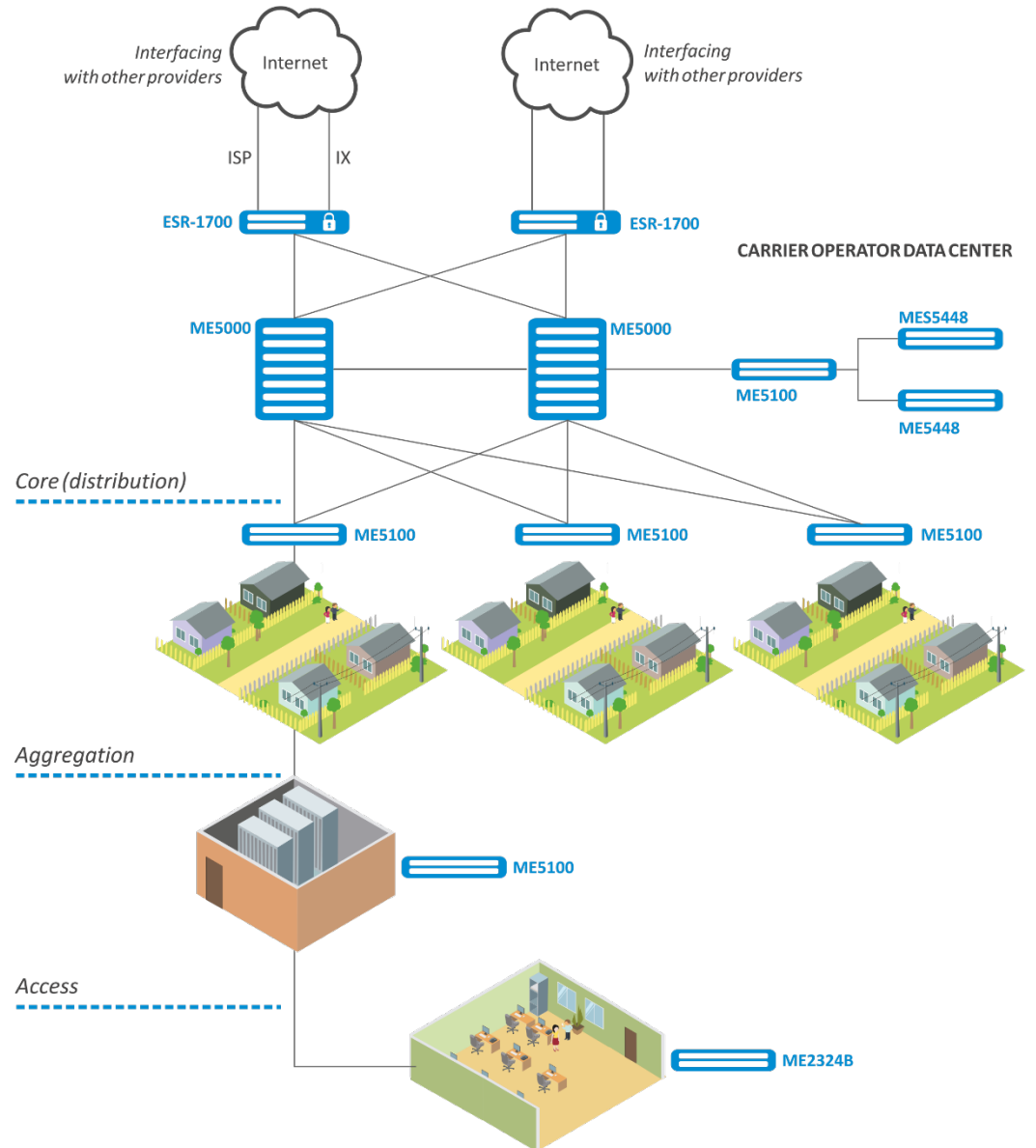
OTHER:

- LACP (Link Aggregation Control Protocol)
- LLDP (Link Layer Discovery Protocol)
- BFD support for all protocols and static routes
- MicroBFD for LAG support
- MC-LAG
- UDLD (Unidirectional Link Detection)
- OOB management
- Netconf protocol
- AAA functions (Authentication, Authorization, Accounting)



BROADBAND SOLUTIONS: BUILDING L3 CORE OF THE NETWORK OPERATOR

- Hardware redundancy on devices of the ME5000 core: management modules, line cards
- Scalability
- Fault tolerance: fast failure detection and switching to a reserve





MANAGEMENT SYSTEMS



Universal system for network equipment management

- Ethernet switches
- VoIP gateways
- Trunk gateways
- GPON OLT

The single access server provides a Web interface allowing independent and simultaneous control over different network elements.

- Monitoring of the main devices characteristics
- Online display of the device failures in text and graphic forms
- Grouping line terminals into nodes with a capability to display all failures of a selected node
- Automatic search for Eltex devices on network



Control and administration system

- Subscriber VoIP gateway
- ONT PON
- IPTV metacenters
- Routers
- Thin clients

Automatic Configuration Server (ACS) is intended to simplify and automatize configuration of subscriber devices (CPE) by using the protocol described in TR-069 standard and allows operators to use global network for centralized control over customer equipment.

- Increasing customer loyalty
- Increasing company profit
- Centralization of subscriber devices management
- Reducing the cost of training and competence development



Centralized system for network equipment management

- Service gateways
- Ethernet switches
- IP ATC*
- VoIP gateways*
- OLT PON*, etc.

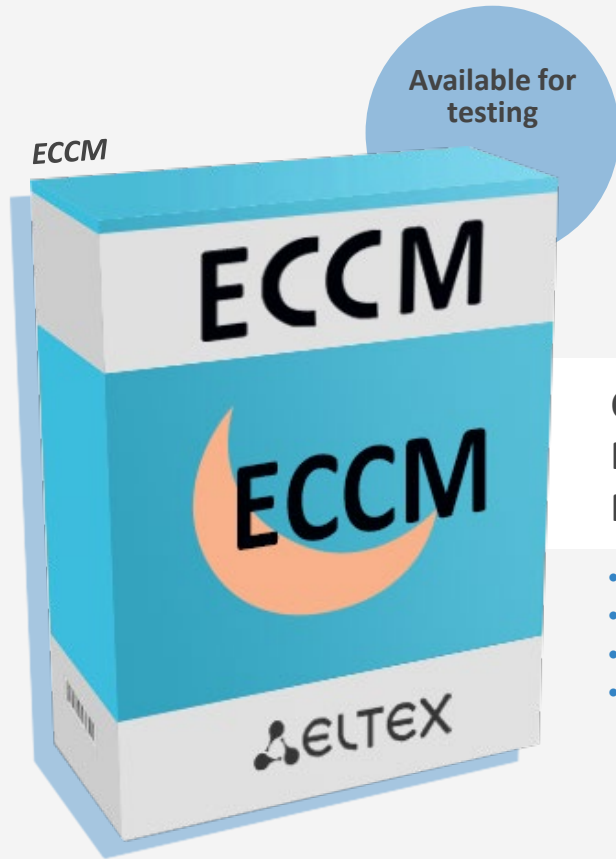
** Under development*

Centralized system for network equipment management. The system is managed via modern and user-friendly web interface which provides convenient tools to customize the system and network equipment to user needs.

- Monitoring of the main devices characteristics
- Real-time control of the network configuration change
- System redundancy
- Close integration with Zabbix monitoring system

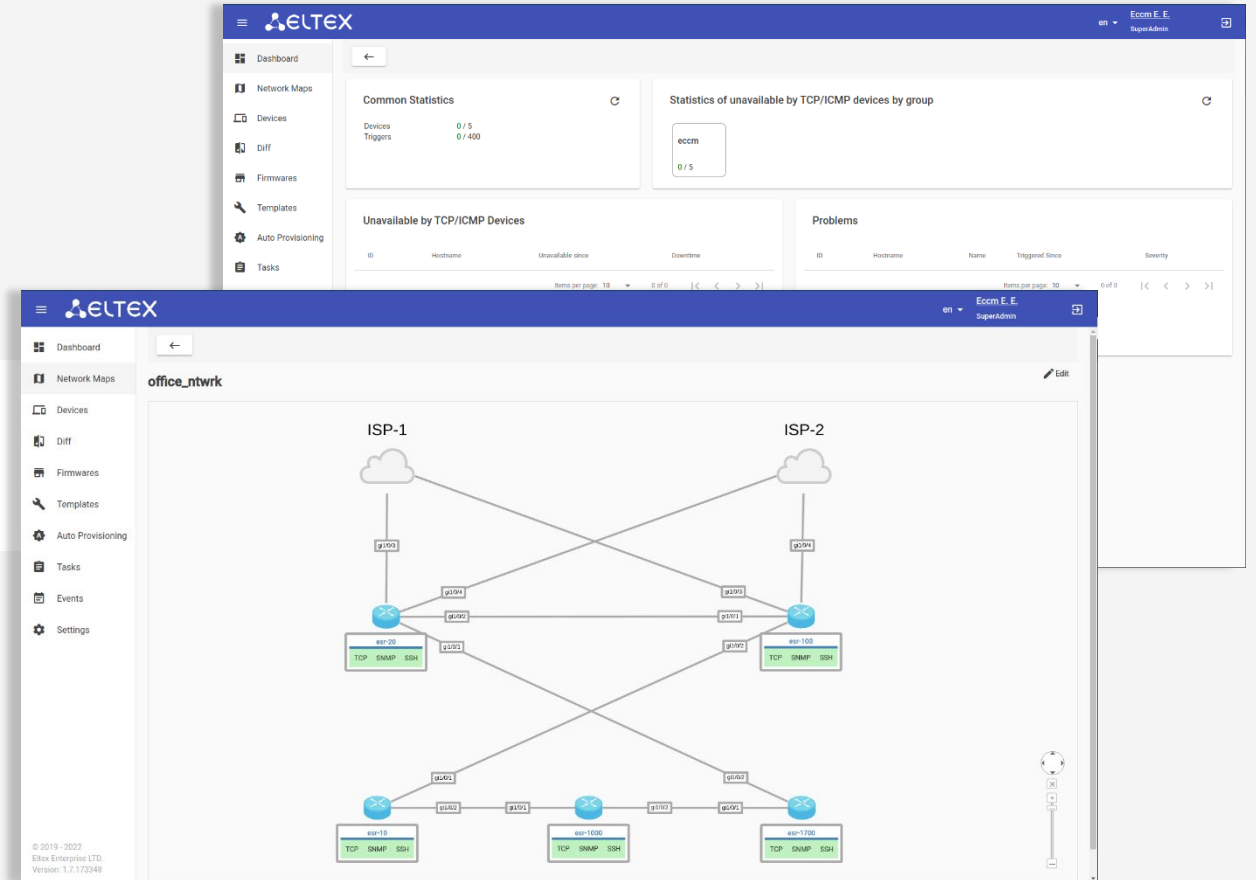


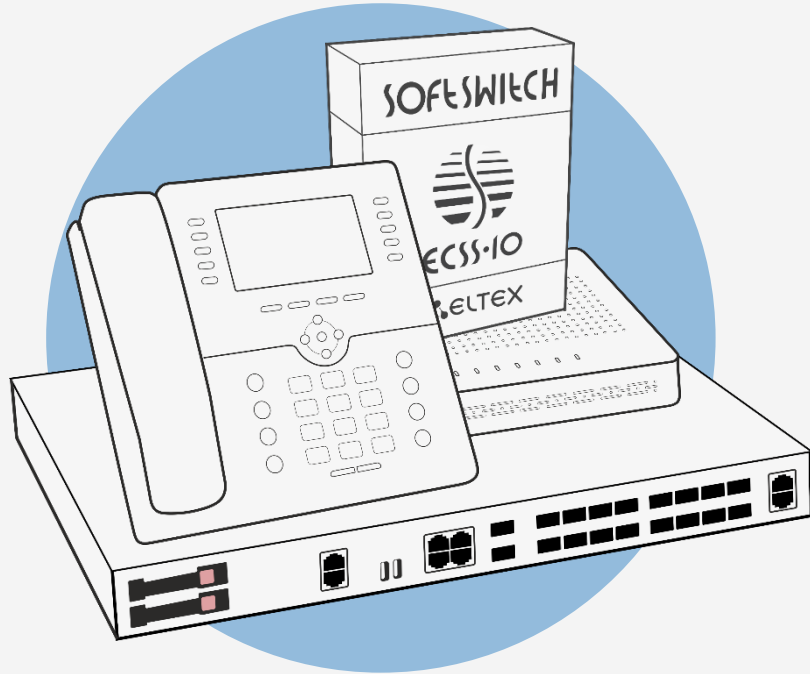
ECCM MANAGEMENT SYSTEM



CENTRALIZED SYSTEM FOR NETWORK EQUIPMENT MANAGEMENT

- Monitoring and management
- Operation with device groups
- User-friendly web interface
- Building a network map





Complete IP Telephony Networking Solution



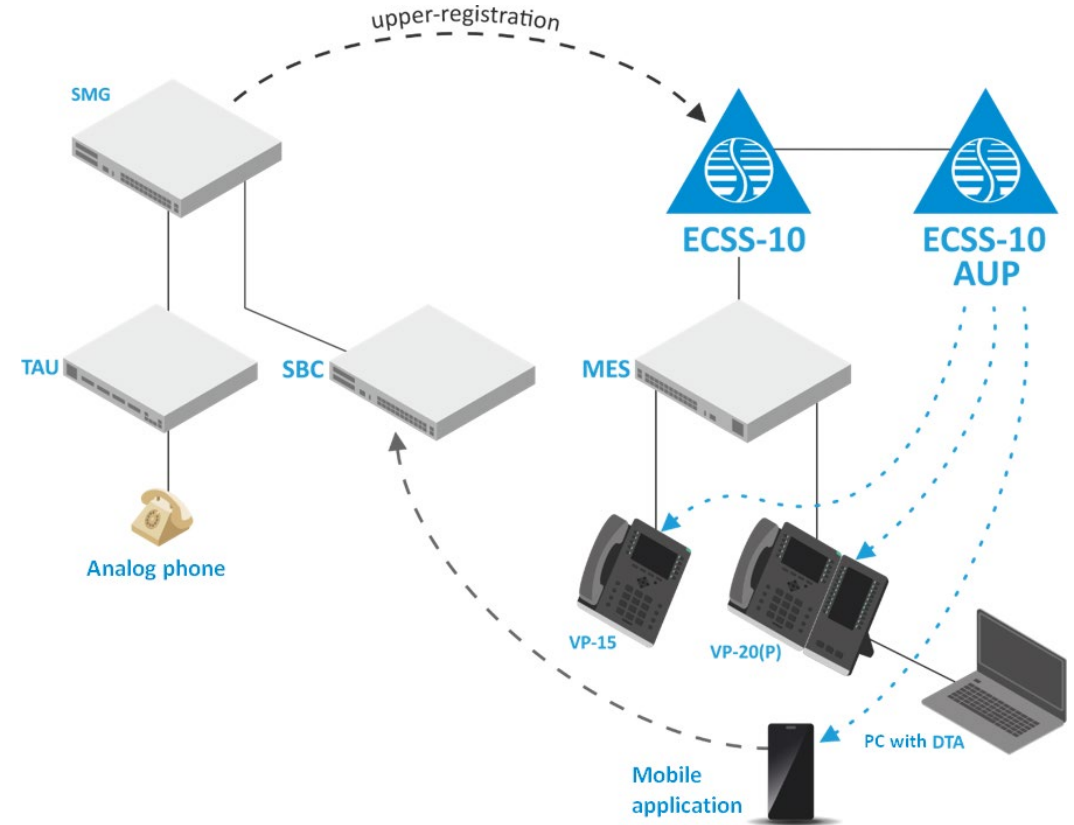


COMPLETE IP TELEPHONY NETWORKING SOLUTION

Eltex develops and produces all necessary hardware and software for IP telephony from station and subscriber devices to unified communications systems

Includes

- Softswitch ECSS-10
- IP PBX
- Trunk gateways
- Subscriber gateways
- Session border controllers
- IP phones
- AutoProvision
- Desktop Assistant
- Mobile Application



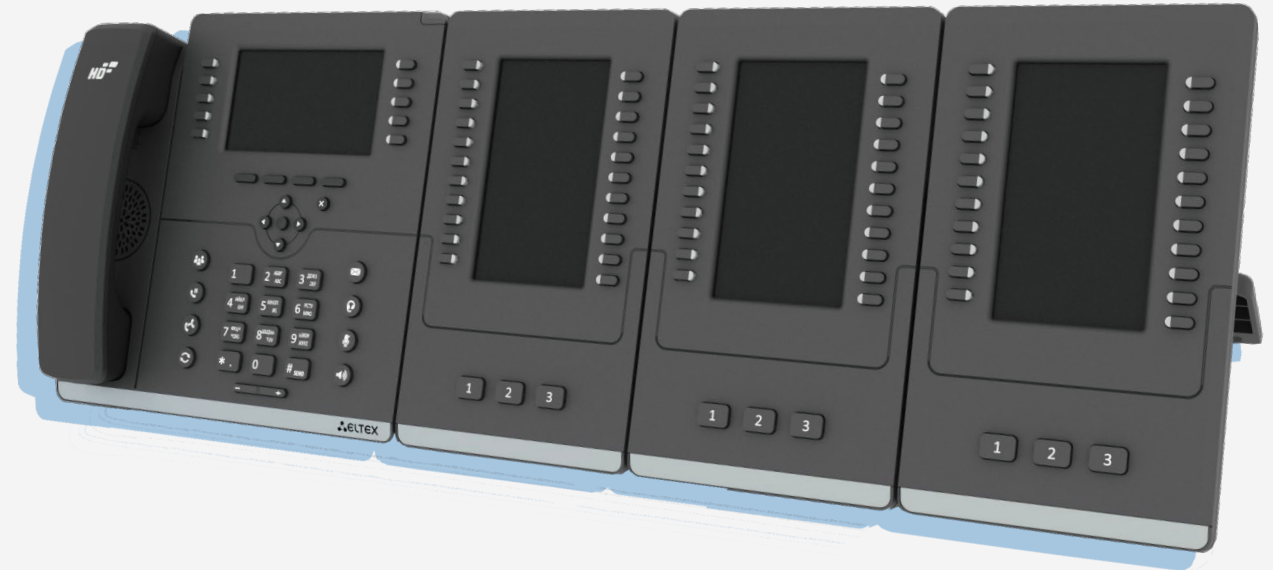


IP PHONES

- 2 SIP accounts
- TR-069 and DHCP support
- Up to 4 redundant SIP servers
- Operation without SIP server
- Local phonebook for 200 numbers
- Possibility to upload ringtones
- Remote Control
- Bridge support*
- Geographical SIP server redundancy (support for up to 4 redundant SIP servers)*
- Flexible dialplan*
- Operation without SIP server*

Supported services

- Call Hold
- Call Transfer
- Call Waiting
- Call Forward on Busy (CFB)
- Call Forward on No Reply (CFNR)
- Call Forward Unconditional (CFU)
- Do Not Disturb (DND)
- Mute*
- Redial*
- Caller Line Identification Restriction (CLIR)
- Local 3 Way-conference
- Support for remote conference according to RFC4579
- Hotline/Warmline
- Answering an intercom call
- ELTEX Desktop Assistant support
- Short text messages transmitting and receiving (SIP MESSAGE)*
- Support for speakerphone mode
- Display of watched subscriber line status (BLF)*



** Not for all models*



IP PHONES

VP-12(P)



VP-15(P)

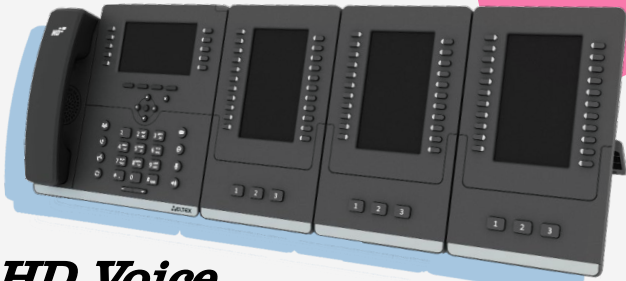


VP-17G(P)



Under
development:
2022 4Q

VP-20P



New

HD Voice

FEATURES	VP-12(P)	VP-15(P)	VP-17G(P)	VP-20P
Number of SIP accounts	2			6
Operation system	Linux			
Subscriber management protocol	TR-069, DHCP			
Auto Attendant	Yes			
Desktop Assistant	Yes			
AutoProvision	Yes			
Extension module	-			VP-EXT22, up to 3
Display	Monochrome, 3.2"			Color, 4.3"
Number of programmable keys	-	6		10
LAN port	100 MB	100 MB	1 GB	1 GB

B2B VoIP GATEWAYS

Key features

- Efficient port cost
- Autoconfiguration
- TR-069, DHCP
- IPSec
- Measuring the parameters of subscriber line
- Office PBX (VAS, internal communication)
- Redundancy of the data channel
- Over 3G/4G





B2B VoIP GATEWAYS

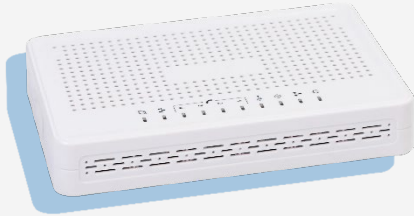
TAU-1M.IP



TAU-2M.IP



TAU-4M.IP



TAU-8N.IP



RG1504GF-Wac



New

Features	TAU-1M.IP	TAU-2M.IP	TAU-4M.IP	TAU-8N.IP	RG1504GF-W
Number of FXS ports	1	2	4	8	4
Number of WAN ports	1 port of WAN 10 / 100BASE-T	1 port of WAN 10 / 100BASE-T	1 port of WAN 10 / 100BASE-T (1000BASE-X)	1 port of WAN 10 / 100BASE-T	1 (SFP)
Number of LAN ports	2 ports of LAN 10 / 100BASE-T	1 port of LAN 10 / 100BASE-T	1 port of LAN 10 / 100BASE-T	-	4
Number of 2.0 USB ports	1				
Wi-Fi	-	-	-	-	802.11ac



SUBSCRIBER GATEWAYS

TAU-16.IP



- 16 analog FXS ports
- Power supply: 220 V AC or 48/60 V DC

TAU-24.IP



- 24 analog FXS ports
- Power supply: 220 V AC or 48/60 V DC

TAU-32.IP



- Modular device with 32 analog FXS/FXO ports
- Power supply: 220 V AC or 48/60 V DC
- Passive cooling

TAU-36.IP



- 36 analog FXS ports
- Power supply: 220 V AC or 48/60 V DC

TAU-72.IP



- 72 analog FXS ports
- Power supply: 220 V AC or 48/60 V DC



MSAN MC1000-PX

- Up to 1152 FXS ports
- Two power inputs: -48 V DC (hot redundancy mode)
- V5.2
- SIP



SMG TRUNK GATEWAYS: FEATURES AND CAPABILITIES

Call management

- Interaction with STUN server on the SIP interface
- Routing based on called number (CdPN) or calling number (CgPN)
- Routing based on access mode
- Number modification before and after routing
- Call recording according to number mask and dialplan
- Use of multiple dialplans
- Subscriber lines restriction
- Subscriber service mode settings
- Trunk group cut-off
- Call management via RADIUS
- Direct connection of trunk groups
- Law Enforcement Support System (LESS)
- Prefix for several trunk groups
- Interactive Voice Response (IVR)
- Uploading/downloading of configuration as a single file
- Lines limiting for SIP interface
- Egress and ingress lines restrictions for subscriber
- Ingress load limiting (CPS – calls per second) on a trunk group

Configuration flexibility

- Multiple network interfaces creation for telephony (SIP, RTP) with different IP addresses
- Operation with multiple dialplans
- Signal SS7 channel redundancy
- Voice activity control (by the presence of RTP or RTCP)
- Individual routing for streams of a single SS7 linkset





SMG MAIN PARAMETERS



Hot-swappable power supplies: support for two different power sources



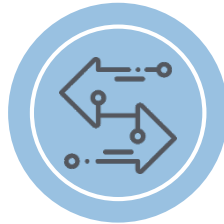
High density of ports



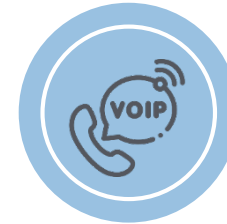
Low power consumption



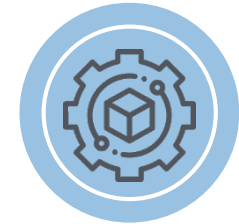
User-friendly web interface



TDM to IP converting



IP PBX features



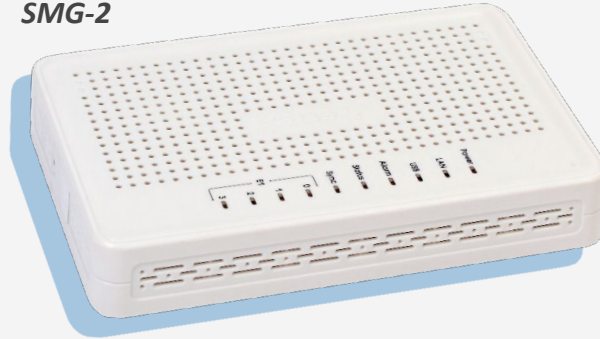
Flexible call processing rules



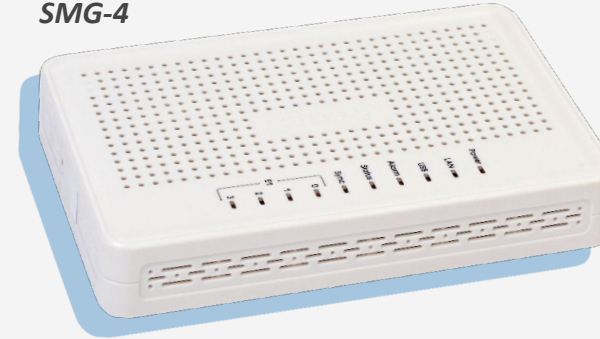
TRUNK GATEWAYS

Desktop case

SMG-2



SMG-4



FEATURES	SMG-2	SMG-4
Alarm support	SS, PRI	
Number of VoIP channels	64	128
Number of E1 streams (RJ-48)	Up to 2	4
Number of CPS	40	
Power	220 V	

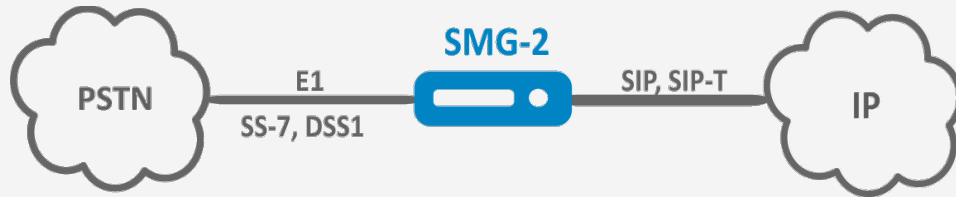


Support for semi-permanent connection functionality for satellite link operation

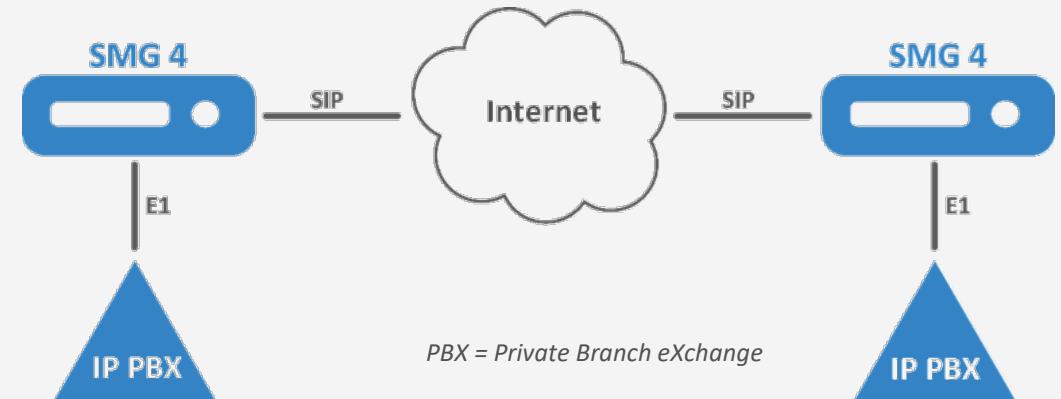


APPLICATION DIAGRAM

Protocols converter

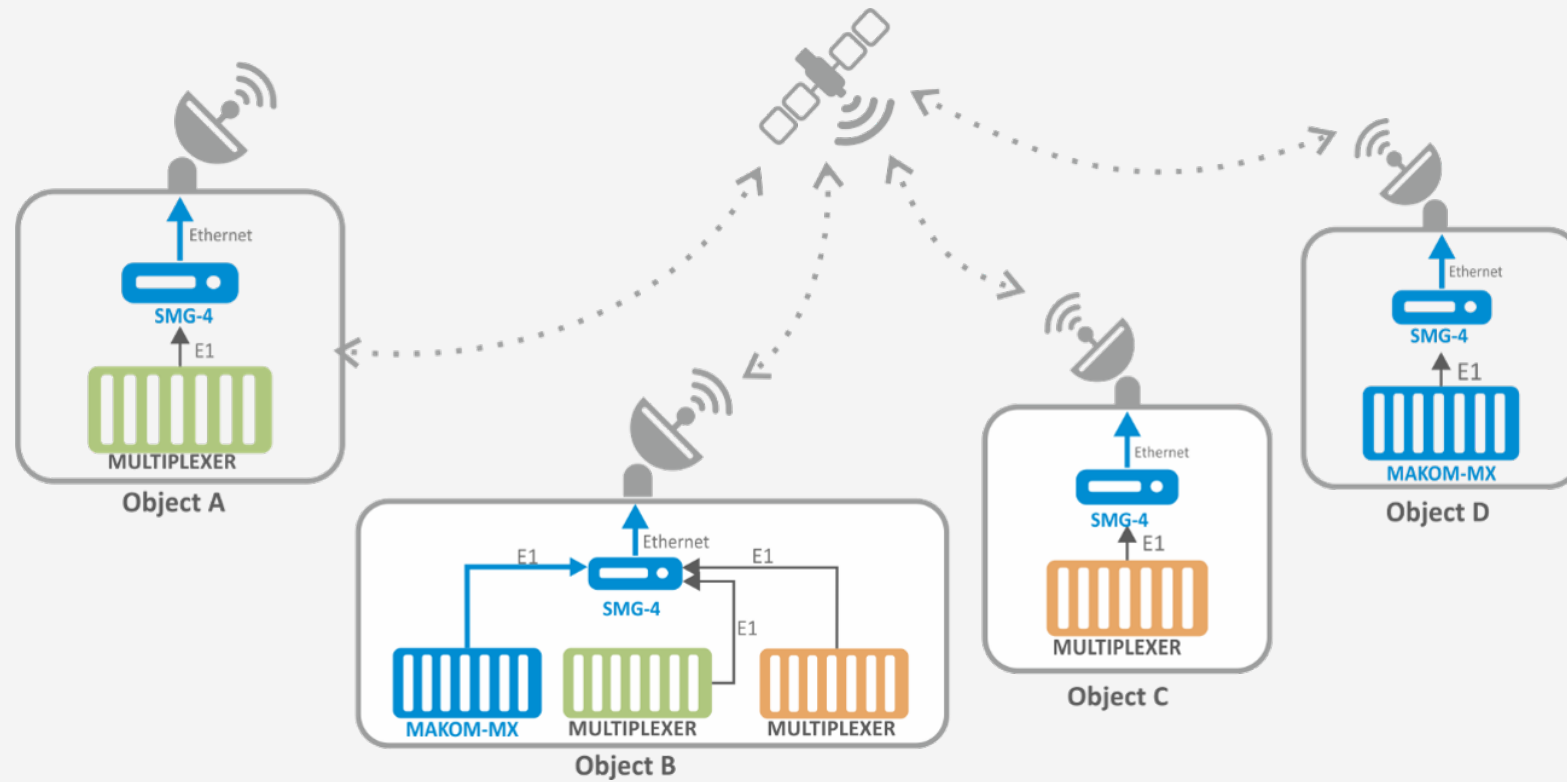


Digital PBX connection to IP





CONNECTION OF REMOTE OBJECTS VIA SATELLITE COMMUNICATION CHANNELS





TRUNK GATEWAYS

Desktop case

SMG-1016M



- 2 ports of 1000BASE-X (2 slots for SFP modules)
- 3 ports of 10/100/1000BASE-T (RJ-45)
- E1 (2 CENTRONICS-36 connectors)
- 1 port of USB 2.0
- 1 console port (RS-232)
- 2 ports of SATA (for SSD modules installation)

SMG-3016



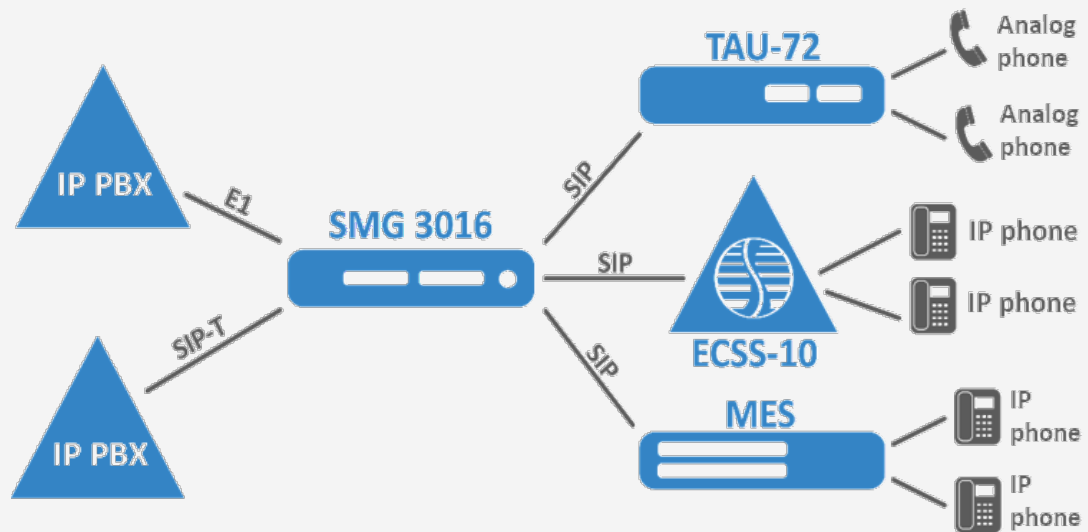
- 16 ports of E1 (RJ-48)
- 2 ports of 10/100/1000BASE-T (RJ-45) / 1000BASE-X (SFP)
- 2 ports of 10/100/1000BASE-T (RJ-45)
- 2 ports of USB 2.0
- 2 slots for SATA HDD 2.5"

FEATURES	SMG-1016M	SMG-3016
Number of CPS	14	120
Support for V5.2 (LE)	Yes	Yes
E1 signaling	SS, DSS1 (Q.931), PRI	
Auto alert in an emergency	Yes	
Controller-peripheral redundancy via IP and E1	-	Yes
Number of E1 streams	Up to 16 E1 (period of 4 E1)	
Number of IP channels	Up to 768 (period of 128)	
Number of VLAN	Up to 40	
Routing based on Radius protocol	Yes	
Power	220/48 V with hot swapping	
Voice codecs	G.711 (a-law, μ -law), G.729 (A/B), G.723.1, G.726 (32 Kbps)	
VoIP protocols	SIP, SIP-T/SIP-I, SIP-Q; H.3231; SIGTRAN (M2UA, IUA)	

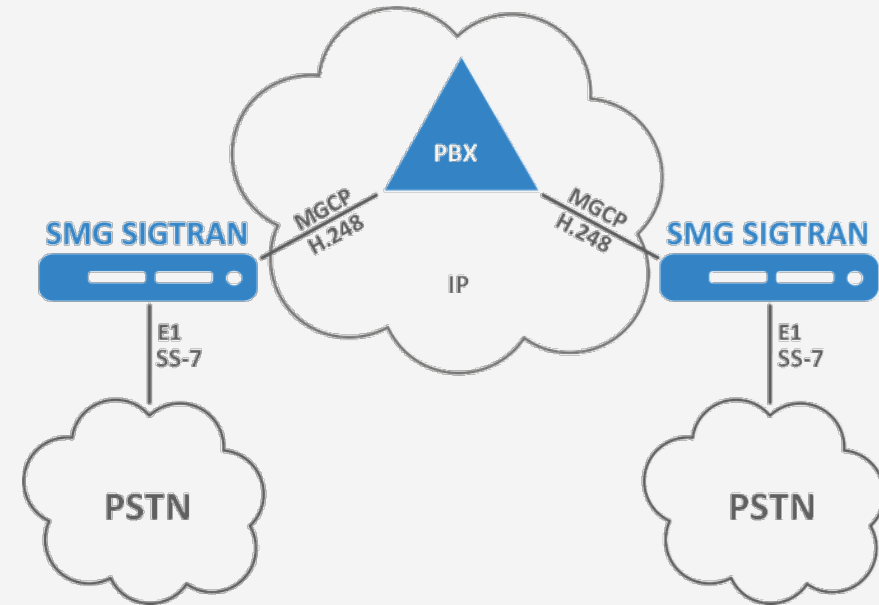


APPLICATION DIAGRAM

Terminal network mode



Transparent transmission of E1 (SS7) through IP network





SOFTSWITCH: HARDWARE AND SOFTWARE PLATFORM



ECSS-10 is a hardware and software platform that is designed for integrated infocommunication networks construction. The software and hardware components of ECSS-10 were developed and manufactured by Eltex and have a high level of reliability.

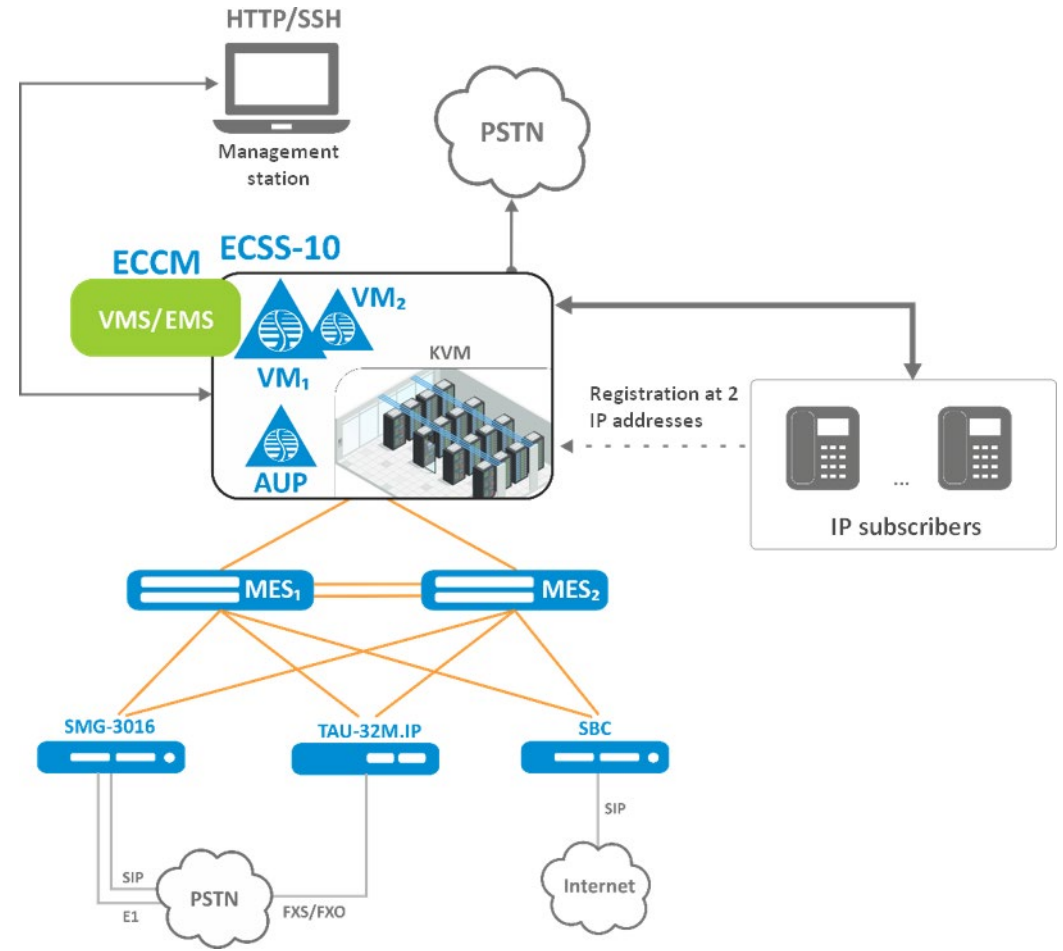
Key features

- Support for multi-domain
- Functionality of private branch exchange, rural, city, trunk line, combined and international telephone exchanges, emergency call service node
- Call center
- Up to 1500 CPS (depends on configuration)
- Scalability
- User-friendly interface
- Teleconference
- Mobile client (Android, IOS)
- Desktop Assistant (Windows, Astra Linux, Linux)
- Support for Cisco, Grandstream, Yealink, Fanvil, Siemens, Avaya and other vendors phones
- 100 000+ subscribers
- Corporate services
- Support for virtualization
- Support for Astra Linux
- Active-active redundancy mode
- Autoprovision of subscriber devices
- Speech recognition
- Voice synthesis
- API for integration with external systems (Bitrix, Megaplan, AmoCRM)
- Billing (LAN, Hydra, Smart ACR, Net up, Portabilling) etc.



SOFTSWITCH: ECSS-10 SOLUTION ARCHITECTURE

- Single manufacturer components
- Single control and monitoring system
- Operation on hardware and virtual platforms
- Compatible with other vendors
- Autoconfiguration system of IP phones
- Operation with analog and IP subscribers





VALUE ADDED SERVICES (VAS)

Call group services

- Call Hunt
- Group call with optional hidden redirection (CGG)
- Boss-group
- Zone Page
- Group Pickup
- Auto Attendant
- Direct Inward Dialing

Subscriber services

- Calling Line Identification Presentation (CLIP)
- Calling Line Identification Restriction (CLIR)
- Calling Line Identification Restriction Override (CLIRO)
- Calling Name Identification Presentation (CNIP)
- Calling Picture Identification Presentation (CPIP)
- Customizing Ring Back Tone (RBT)
- Personal voice notification/intercom (Voice Page)
- Intervention
- Distinctive Picture
- Distinctive Ring
- Anonymous Call Barring (ACB)
- Call forwarding: unconditional, busy, no response, out of service, time based, based on Caller ID (CFU, CFB, CFNR, CFOS, CFT, CFAON)
- Hide Call Forwarding Name
- Call forwarding barring: outgoing calls (FBC), incoming calls (RFC)
- Call Forwarding Unconditional on Find Me and Find Me No Response

- Follow Me, Follow Me No Response
- Call Forwarding by SIP redirection (CF Sip)
- Call Waiting Service (CWAIT)
- Multiline
- Call Hold (CHOLD)
- Call Pickup
- Call Transfer (CTR)
- Call Park
- 3-Way Conference
- Conference Call, Add-on
- VIP Call
- Walkie-talkie
- Selective Call Acceptance, Incoming Whitelist
- Selective Call Rejection, Incoming Blacklist
- Selective Call Origination, Outgoing Whitelist
- Selective Call Origination, Outgoing Blacklist
- Missed call notification
- VAS management via phone
- Call Recording
- Video Call Recording
- Voice Mail
- Message Waiting Indication (MWI)
- Busy Lamp Field (BLF)
- Presence

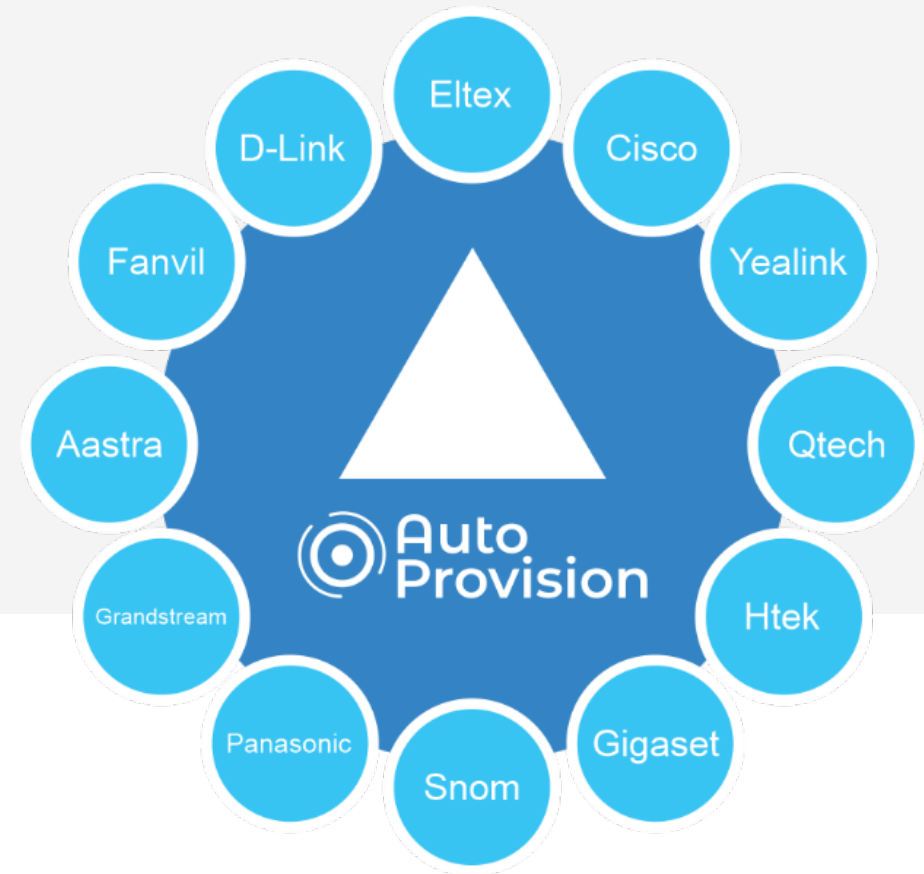
- Call Back
- Auto Redial
- Auto Redial with Callback
- Redial
- Speed Dial
- Do Not Disturb (DND)
- Alarm
- Malicious Call Identification (MCID)
- My Number
- Outgoing calls barring (RBP)
- Hotline/Warmline
- Authorization on a remote phone
- Duplicating incoming calls to additional internal or external number (Flexi Call)
- Introducing message for called subscriber (Introduce)
- Second handset
- Smart cancel
- Subscriber IVR script
- Privacy — intervention barring
- Adjustable remote ring tone (Remote ring)
- Fax2Email, Email2Fax
- Caller Name Talker (cnip_audio), etc.



ECSS-AUP: SYSTEM FOR AUTOMATIC CONFIGURATION OF IP PHONES



- Independent component of ECSS-10
- Transparent subscriber phone replacement
- Option to change phone model and vendor
- Fitting of subscriber configuration to the new phone
- Web interface
- Support for other vendors

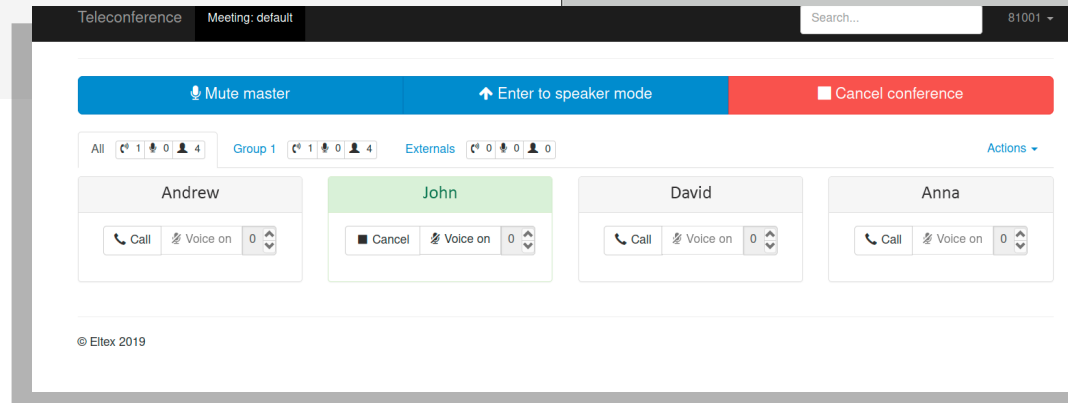
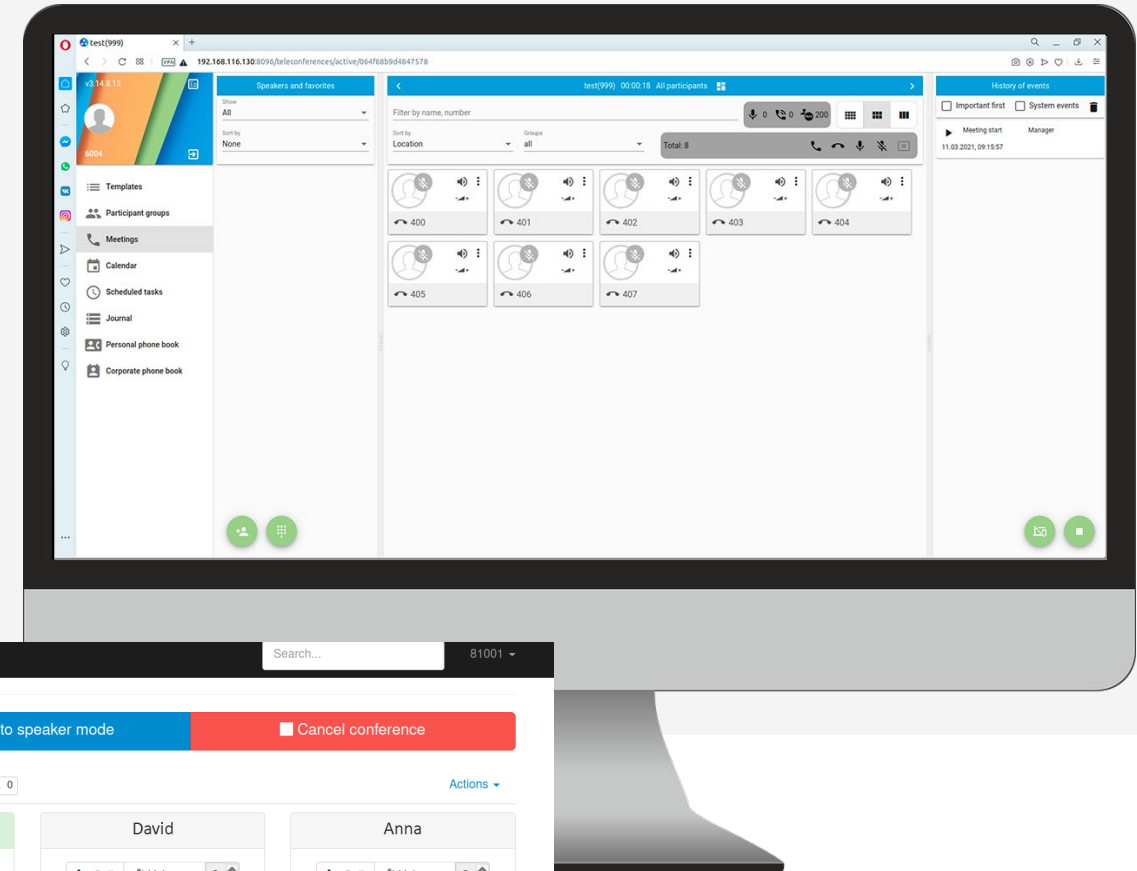




TELECONFERENCE

User-friendly interface for holding meetings

- Creating a meeting template
- Setting up a file for automatic invitations to meetings
- Automatic and manual adding of participants to an active meeting (internal and external)
- Tracking caller status on console or in web interface
- Management by providing voice to participants
- Viewing the transcripts of meeting
- Adjusting the volume level of audio streaming from participants
- Viewing history and listening to meeting recordings



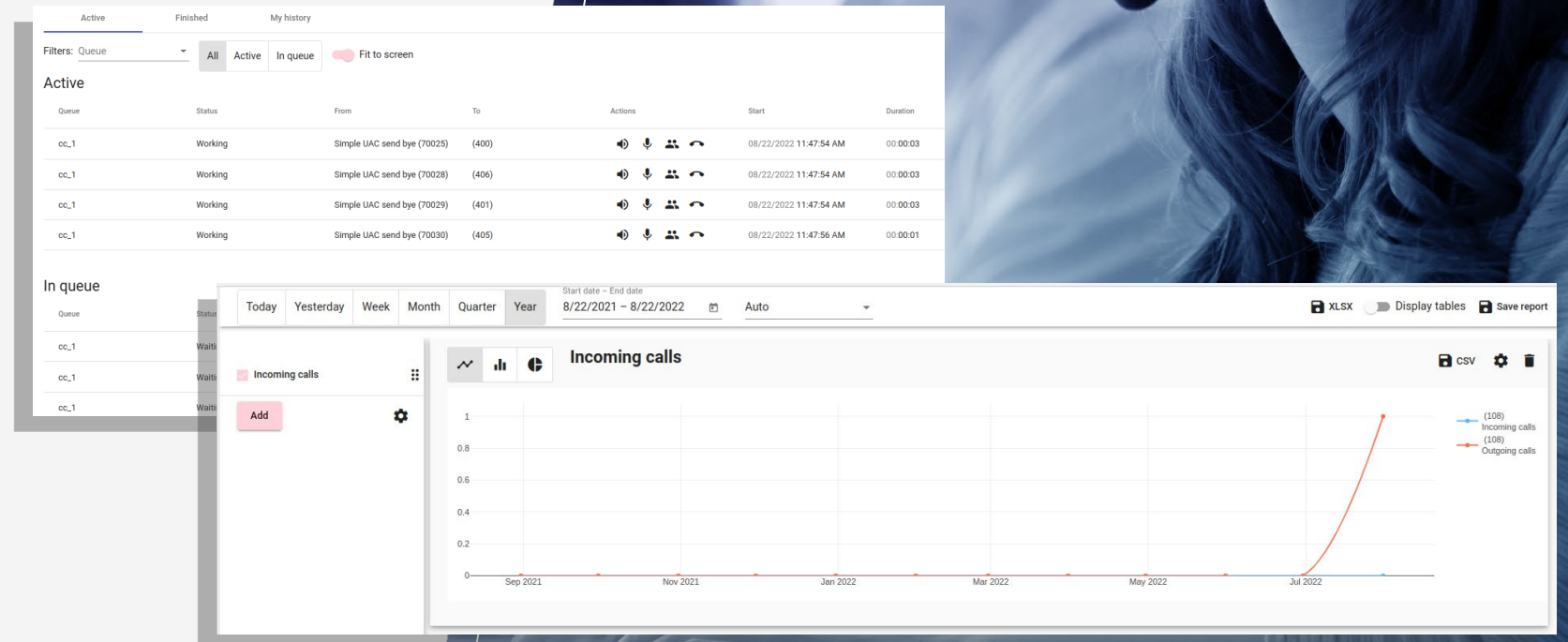
CALL CENTER

Efficient service for handling incoming calls

Call center is an independent component of ECSS-10

Key features

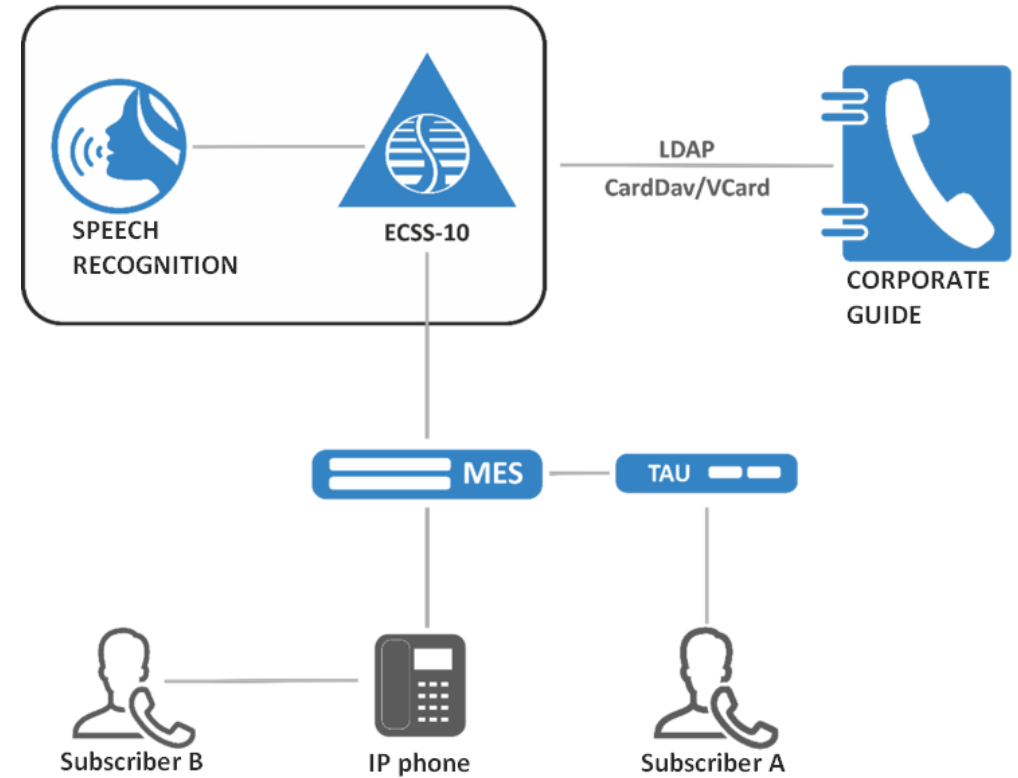
- Extended queue, extended queue distribution strategies
- Automated workplace (AWP) of operator
- AWP of supervisor
- Hotline
- Queue service for callbacks
- Clients self-service
- Conversation recording and speech recognition



AUTO ATTENDANT

Quickly dial any phone number from the address book after caller's name announcing

SOFTSWITCH





UNIFIED COMMUNICATIONS



Real-time services
integration



Status
indicators



Document
collaboration



Video
conference



Presentations
broadcasting



Speech
recognition



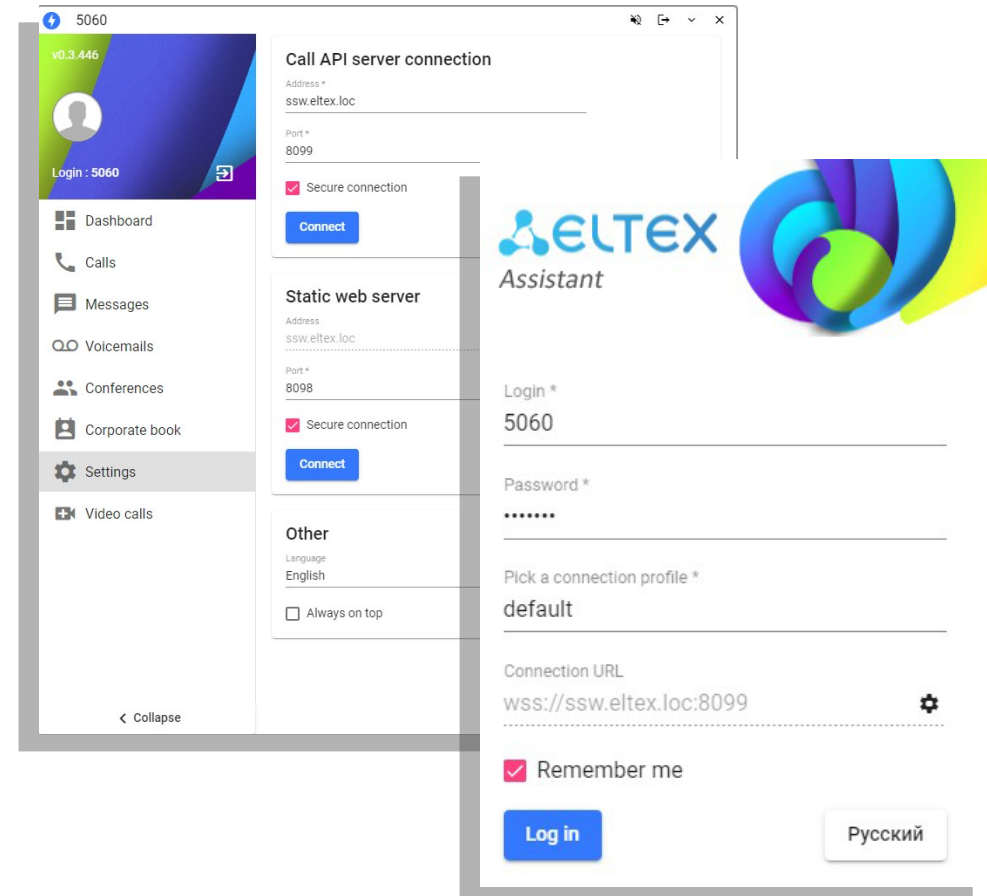
SOFTSWITCH: DESKTOP ASSISTANT

Managing IP phone calls from PC

Key features

- Call Acceptance
- Corporate guide
- Click2call
- Call History
- Russian and English interface
- Adjustable window size, minimization to tray
- Connection settings and interface language tabs
- Windows, Linux, Astralinux

Available for Windows 7 / Windows 10 and linux (Ubuntu)



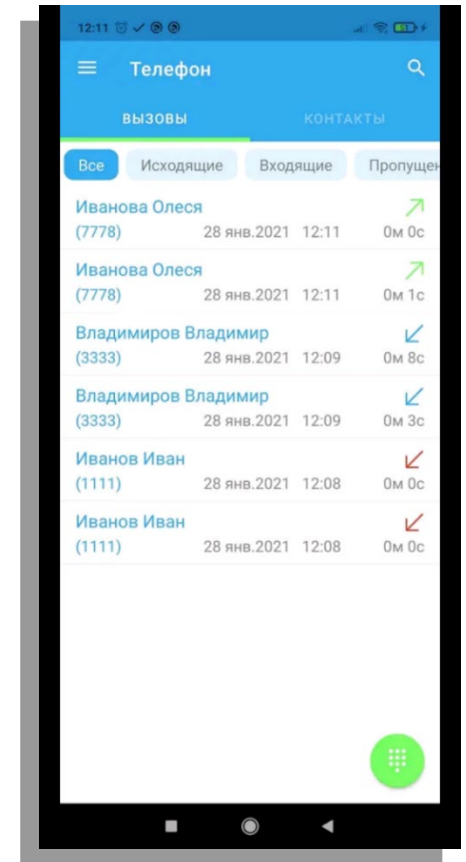
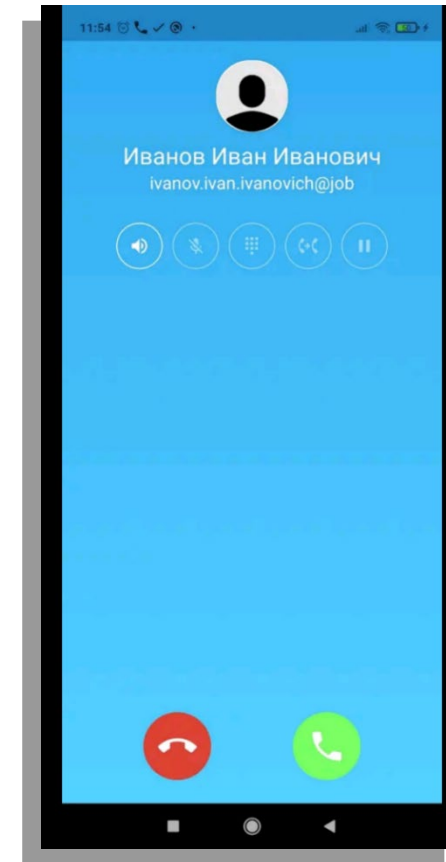
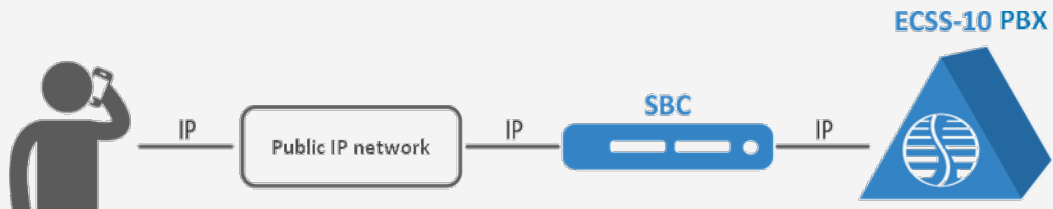


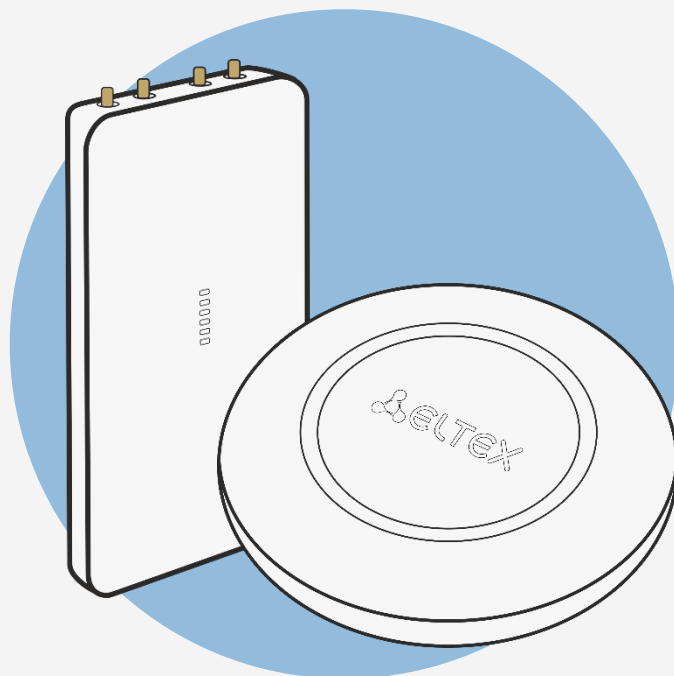
SOFTSWITCH: MOBILE APPLICATION

Managing IP phone calls from PC

Key features

- Support for Android and iOS
- Access to voice services on corporate PBX
- Secure connection using session border controllers





Wireless solutions





Wireless solutions

Enterprise & SMB

- Indoor/outdoor Wi-Fi access points
- Wireless network controller
- Solutions for telecommunications carriers and business customers

Wireless broadband access

- Organization of wireless networks according to "point to point" (PTP) and "point to multipoint" (PTMP) schemes
- Wide operating temperature range

LTE/4G solution

- Remote objects connection
- Organization of wireless network in transport
- Wireless "radar"
- Communication channels reservation





Wireless solutions

Mass production

INDOOR



LOW

WEP-2L

- MIMO 2X2

MIDDLE

WEP-2ac

- MIMO 2X2

HD

WEP-3ax

- MIMO 3X3:3

WEP-200L

- MIMO 2x2:2
- MU-MIMO 4X4:4

Under development Wi-Fi 6

WEP-3L

- MU-MIMO 2X2:2

WEP-30L

- MU-MIMO 2X2:2

WEP-300L

- MU-MIMO 4X4:4

Mass production

OUTDOOR



LOW

WOP-2L

- MIMO 2X2

MIDDLE

WOP-2ac

- MIMO 2X2

HD

WOP-12ac

- MIMO 3X3:3

WOP-20L

- MIMO 2X2:2

Under development Wi-Fi 6

WOP-30L/30LS

- MU-MIMO 2X2:2

WOP-300L

- MU-MIMO 4X4:4



Wi-Fi 5 INDOOR

- Solution for telecommunications carriers and small businesses
- Single Wi-Fi management center

LOW

WEP-2L



- 802.11ac - 2.4/5 GHz Wave 1
- MIMO 2x2:2
- 802.11r/k/v seamless roaming
- WDS
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 40 users

Middle

WEP-2ac



- 802.11ac - 2.4/5 GHz Wave 1
- MIMO 2x2:2
- 802.11 r/k seamless roaming
- WDS
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 50 users
- Кластерное управление

Middle/HD

WEP-200L



- 802.11ac - 2.4/5 GHz Wave 2
- MIMO 2x2:2 / MU-MIMO 4x4:4
- 802.11r/k/v seamless roaming
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 60 users

Serial deliveries Q4 2022



Wi-Fi 6 INDOOR

- Solution for telecommunications carriers and small businesses
- Single Wi-Fi management center

LOW

WEP-3L

New



- 802.11ax - 2.4/5 GHz
- MU-MIMO 2x2:2
- 802.11r/k/v seamless roaming
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 40 users
- Centralized network management and monitoring with SoftWLC

Serial deliveries Q1 2023

Middle

WEP-30L

New



- 802.11ax - 2.4/5 GHz
- MU-MIMO 2x2:2
- 802.11r/k/v seamless roaming
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 50 users
- Centralized network management and monitoring with SoftWLC

Serial deliveries Q2 2023

Middle/HD

WEP-300L

New



- 802.11ax - 2.4/5 GHz
- MU-MIMO 4x4:4
- 802.11r/k/v seamless roaming
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 100 users
- Centralized network management and monitoring with SoftWLC

Serial deliveries Q3 2023



Wi-Fi 5 INDOOR

- Enterprise-class outdoor access points with external antennas and extended operating temperature range
- Omnidirectional or sectoral antennas make the solution universal in terms of range and coverage
- Ability to build a seamless network with a high density of subscribers, including at industrial facilities

WOP-2L



- 802.11ac - 2.4/5 GHz Wave 1
- MIMO 2x2:2
- 802.11r/k/v seamless roaming
- WDS
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 40 users

WOP-2ac



- 802.11ac - 2.4 и 5 GHz Wave 1
- MIMO 2x2:2
- 802.11r/k/v seamless roaming
- WDS
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009)
- Up to 50 users

WOP-12ac



*Production
is over*

- 802.11ac - 2.4 и 5 GHz Wave 1
- MIMO 3x3:3
- 802.11r/k/v seamless roaming
- WDS
- 2 Ethernet ports
- PoE+ 48B/54B (IEEE 802.3at-2009), 48 B DC
- Up to 60 users

WOP-20L



New

- 802.11ac - 2.4/5 GHz Wave 1
- MIMO 2x2:2
- 802.11r/k/v seamless roaming
- WDS
- 1 Ethernet port
- PoE+ 48B/54B (IEEE 802.3at-2009), 48 B DC
- Up to 50 users

Serial deliveries Q4 2023



Wi-Fi 6 INDOOR

- Increasing a wireless network throughput capability
- Application in high-load networks with a high class of service
- Ability to connect IoT devices

WOP-30L



Under development



- 802.11ax - 2.4/5 GHz
- MU-MIMO 2x2:2
- PoE+ 48B/54B (IEEE 802.3at-2009)
- 1024 QAM
- Two 100/1000/2500 Base-T interfaces
- Centralized network management and monitoring with SoftWLC

WOP-30LS



Under development



- 802.11ax - 2.4/5 GHz
- MU-MIMO 2x2:2
- Directional antenna 60 x 45
- PoE+ 48B/54B (IEEE 802.3at-2009)
- 1024 QAM
- Two 100/1000/2500 Base-T interfaces
- Centralized network management and monitoring with SoftWLC

WOP-300L



Under development



- 802.11ax - 2.4/5/6 GHz
- MU-MIMO 4x4:4
- UPOE
- 1024 QAM
- Two 100/1000/2500 Base-T interfaces
- Centralized network management and monitoring with SoftWLC



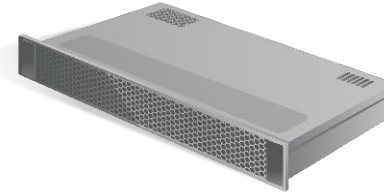
CONTROLLER

Solution for building wireless networks of regional and federal levels with a single management center

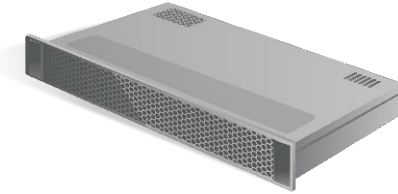


Up to **100 000**
access points

WLC-HW 50

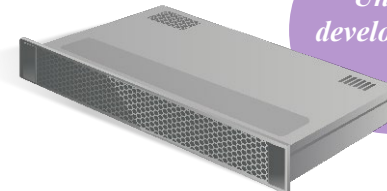


WLC-HW 100



Server solution for 50 or 100 access points

WLC-XX



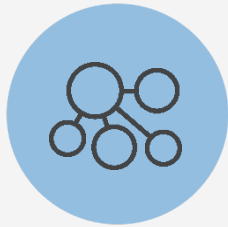
*Under
development*

- HW controller with router functionality
- 100–1000 access points
- CLI/web management



SOFTWLC SOFTWARE CONTROLLER

Up to 100 000 Wi-Fi access points



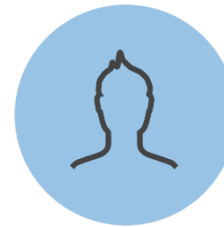
- **EMS**
Network devices management and monitoring.



- **CAPTIVE PORTAL + PORTAL CONSTRUCTOR**
Authorization page.
Design management.



- **RADIUS + DATABASE + DHCP SERVER**
Password generation and storage.
IP address distribution.



- **PERSONAL ACCOUNT**
Creating user accounts.
Statistics on the number of access points.
Device information.
Analytics.



- **AIRTUNE**
Automatic configuration of access points radio parameters.
Client balancing.
802.11k roaming.



- **WIDS**
DDoS attacks detection.
Monitoring of password brute force attacks and insecure configuration.
Detection of points that replace SSID and MAC.
Preventing clients from connecting to unauthorized access points.



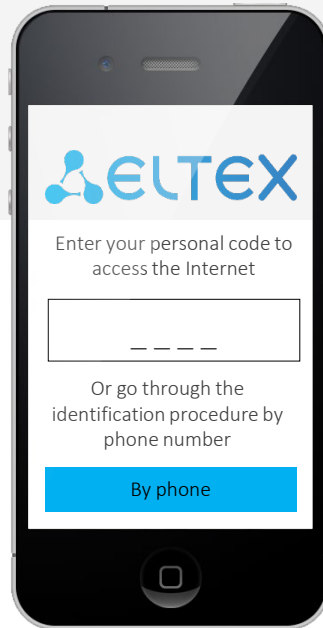
SOFTWLC SOFTWARE CONTROLLER

Captive portal: user identification solution

User identification



Authorization via
SMS or call



Authorization via
voucher

Advertising options

- Customization of portal pages for project tasks
- Clickable banners placement, final redirect to the website
- Visitor survey
- Paid access for visitors (plans)
- Video posting



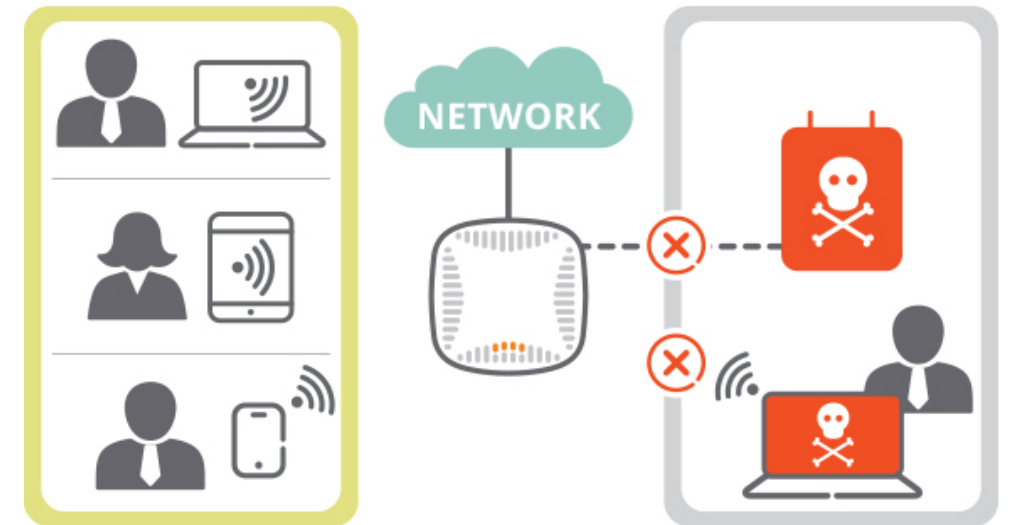
BUILDING Wi-Fi NETWORKS: ATTACK PROTECTION AND PREVENTION (WIDS/WIPS)

WIPS/WIDS is a system for detecting and preventing intrusions in a wireless network.

Access points help to constantly monitor the environment in order to detect unauthorized activities. If security threats are detected, the point warns the administrator and prevents unauthorized actions.

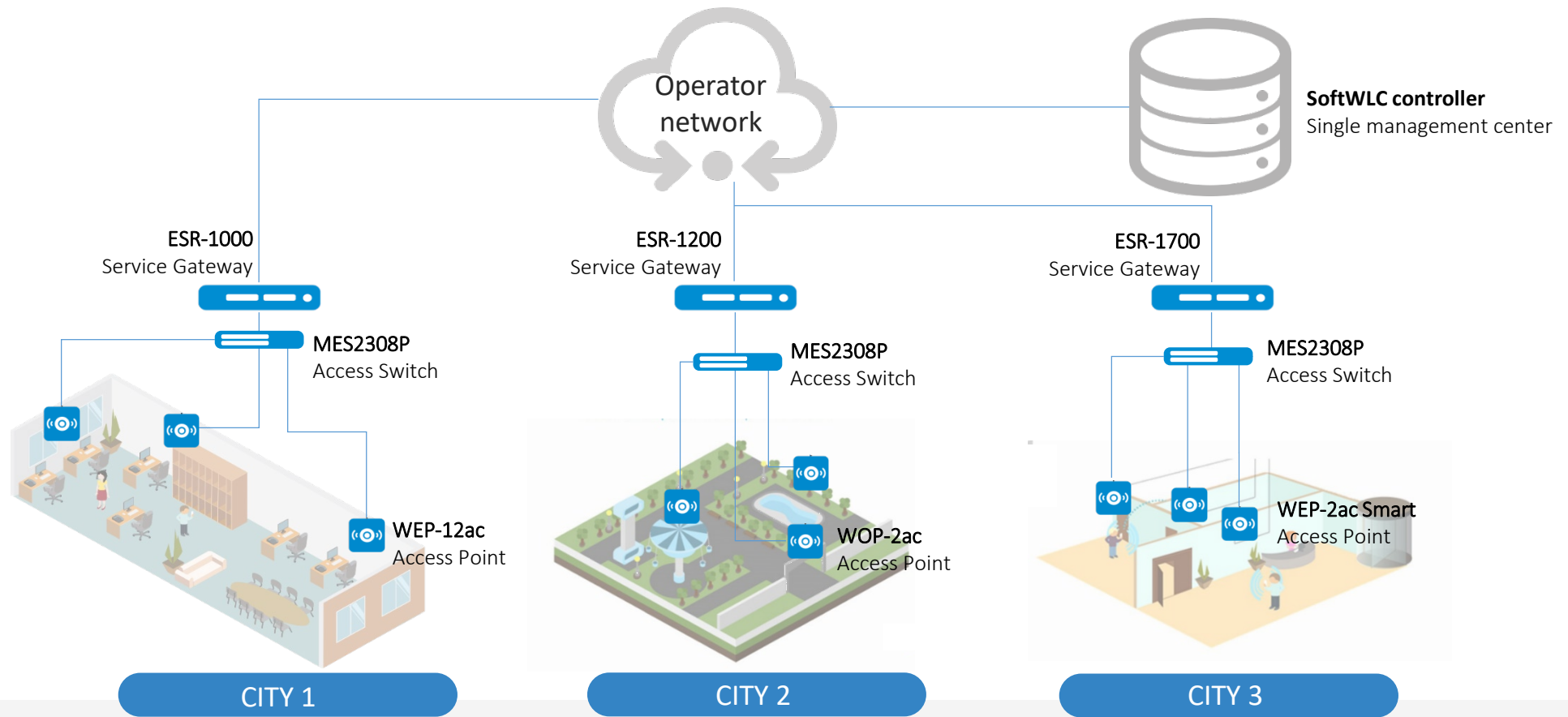
Main functions

- DDoS attacks detection
- Password brute force monitoring
- Insecure configuration monitoring
- Detection of points imitating SSID
- Detection of points imitating MAC
- Disconnecting clients from rogue access points





BUILDING A WIRELESS NETWORK

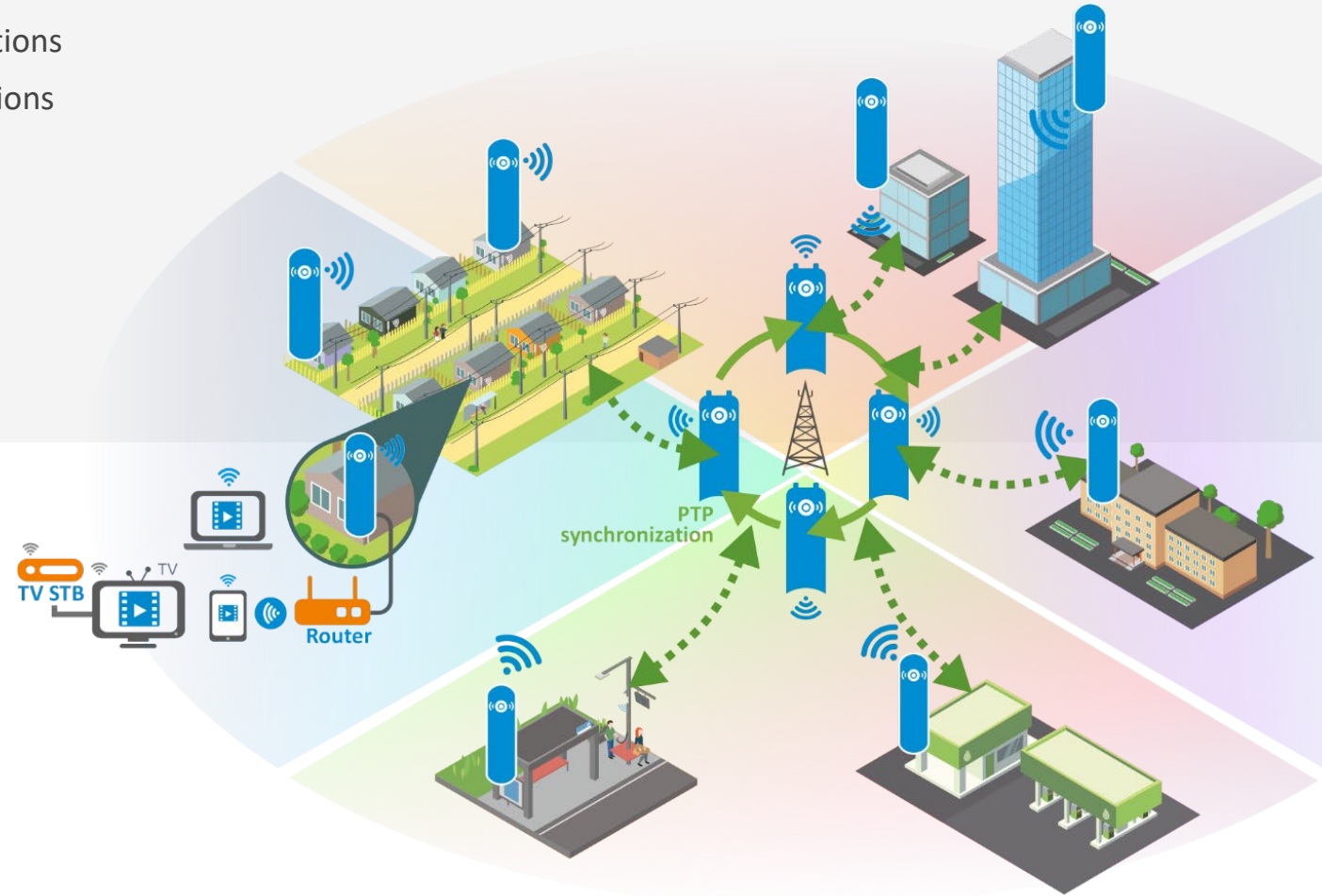




FWBA SOLUTION

Main features

- Using one frequency for several base stations
- PTP synchronization for up to 4 base stations
- Increasing subscriber capacity





FWBA BASE STATIONS

WOP-2ac-LR2 SYNC



WOP-2ac-LR5 SYNC



FEATURES	WOP-2ac-LR2 SYNC	WOP-2ac-LR5 SYNC
Radio interface	802.11b/g/n (2.4 GHz)	802.11a/n/ac (5–6 GHz)
Transmitter power, dBm	26	28
Number of subscribers per station	Up to 30	
Polling support	Yes	
SFP installation possibility	Yes	
Signal level indication	Yes	
Centralized network management and monitoring with Eltex EMS software	Yes	
Intersectoral synchronization	Yes	



FWBA SUBSCRIBER STATIONS

WB-2P-LR2



WB-2P-LR5



FEATURES	WB-2P-LR2	WB-2P-LR5
Radio interface	802.11b/g/n (2.4 GHz)	802.11a/n/ac (5–6 GHz)
Transmitter power, dBm	26	28
Polling support	Yes	
Signal level indication	Yes	
Centralized network management and monitoring with Eltex EMS software	Yes	

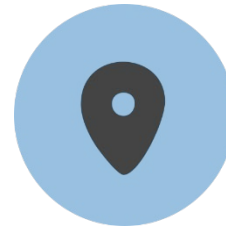


WIRELESS BROADBAND ACCESS



- **Wide temperature range**

All devices are suitable for outdoor use and designed for operation in a wide temperature range from -50 °C to +65 °C



- **Extended coverage range**

Using the **WOP-12ac-LR** access point with 18 dBi sectoral antennas allows covering an area of 5 km. The base station gives an opportunity to connect up to 3 sectors (it is possible to cover the full radius of 360 degrees with one access point)



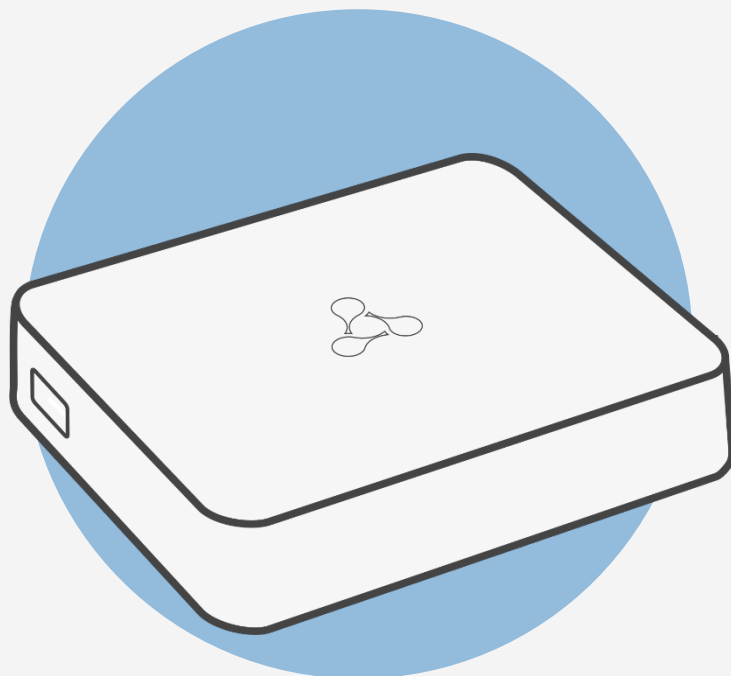
4G/LTE MODEM WITH Wi-Fi

Main features

- High-performance two-channel 2G/3G/4G gateway for connecting network equipment to the Internet or government/enterprise networks
- Support for LTE modem with channel redundancy function
- Wi-Fi 2.4 GHz 802.11b/g/n with MIMO 2x2 support
- GPS support
- IP54 protection class, outdoor version, operating temperatures from -45 °C to +60 °C
- Passive PoE 24 V and 9–36 V DC power supply

WB-15-W





Media





IPTV SET-TOP BOX WITH VOICE CONTROL



IPTV set-top-box allows you to view streaming media and video content, as well as install games and Android applications

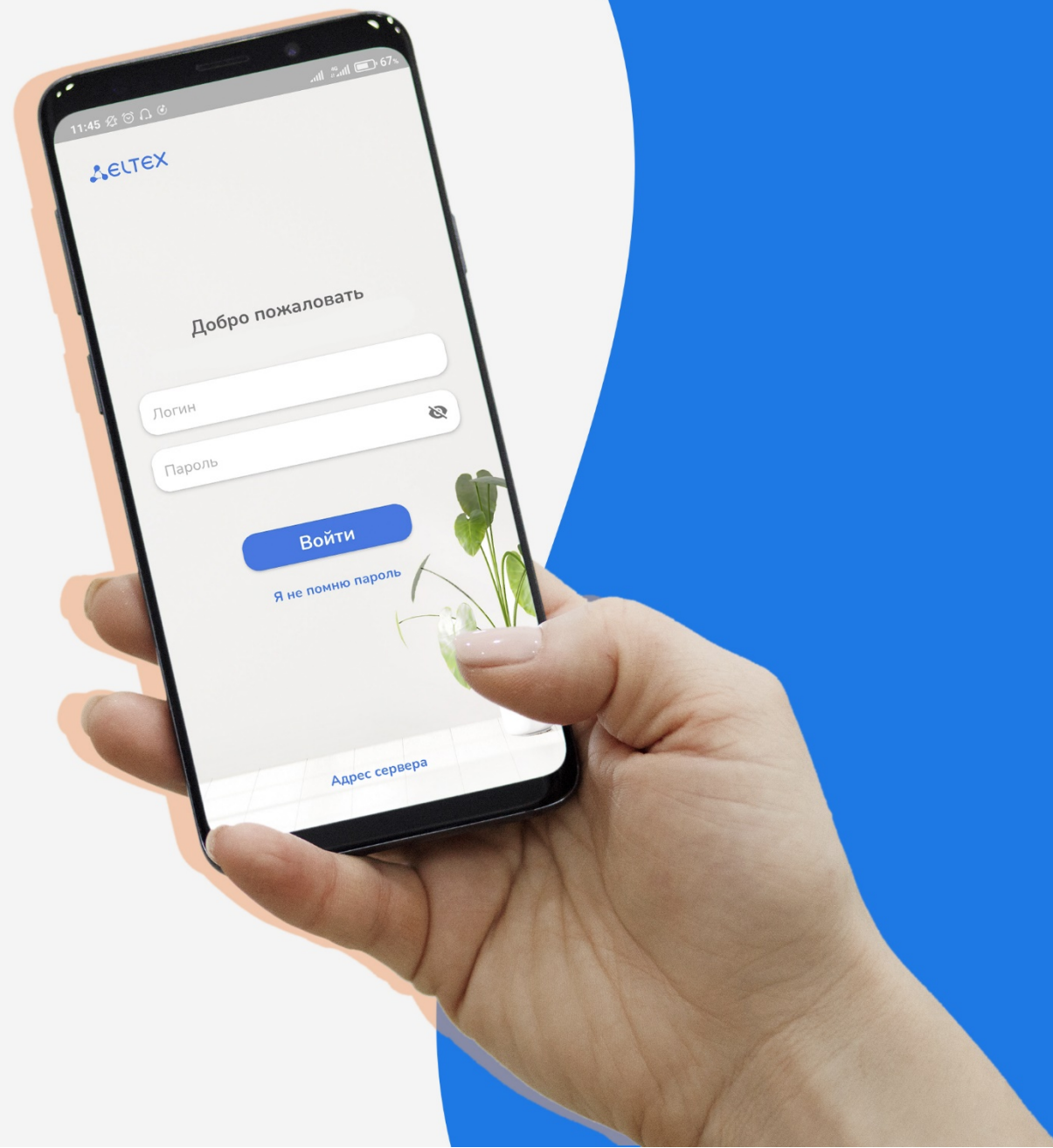
Hit
of sales

CHARACTERISTICS	NV-711 / NV-711-Wac	NV-720 / NV-720-WB
RAM	1 GB	2 GB
Flash	8 GB	8 GB
OS	Android 7.1	Android 9.0
4K	4K, Full HD IPTV	4K, Full HD IPTV
USB	2.0 x 1	2.0 x 1
HDMI	V2.0	V2.0
Wi-Fi 802.11a/b/g/n/ac	Yes*	Yes*
HDR 10+	-	Yes
Bluetooth 4.x	-	Yes*

** optional*

SMART HOME

Take care of safety and comfort
in one touch



ELTEX SMART HOME



“

Introduces a new level of comfort and safety. IoT technologies allow to stay in touch with your home and configure it with one touch.

Manages not only individual devices, but also entire services: safety and security, lighting, climate and video surveillance. The user decides which ones to install.

The smart home will take care of daily household chores and take over the management of smart devices.



Monitoring the
condition of
the house



Wireless
technologies



Executing
scripts



Sending
notifications



Voice
control



Cloud or local
solution

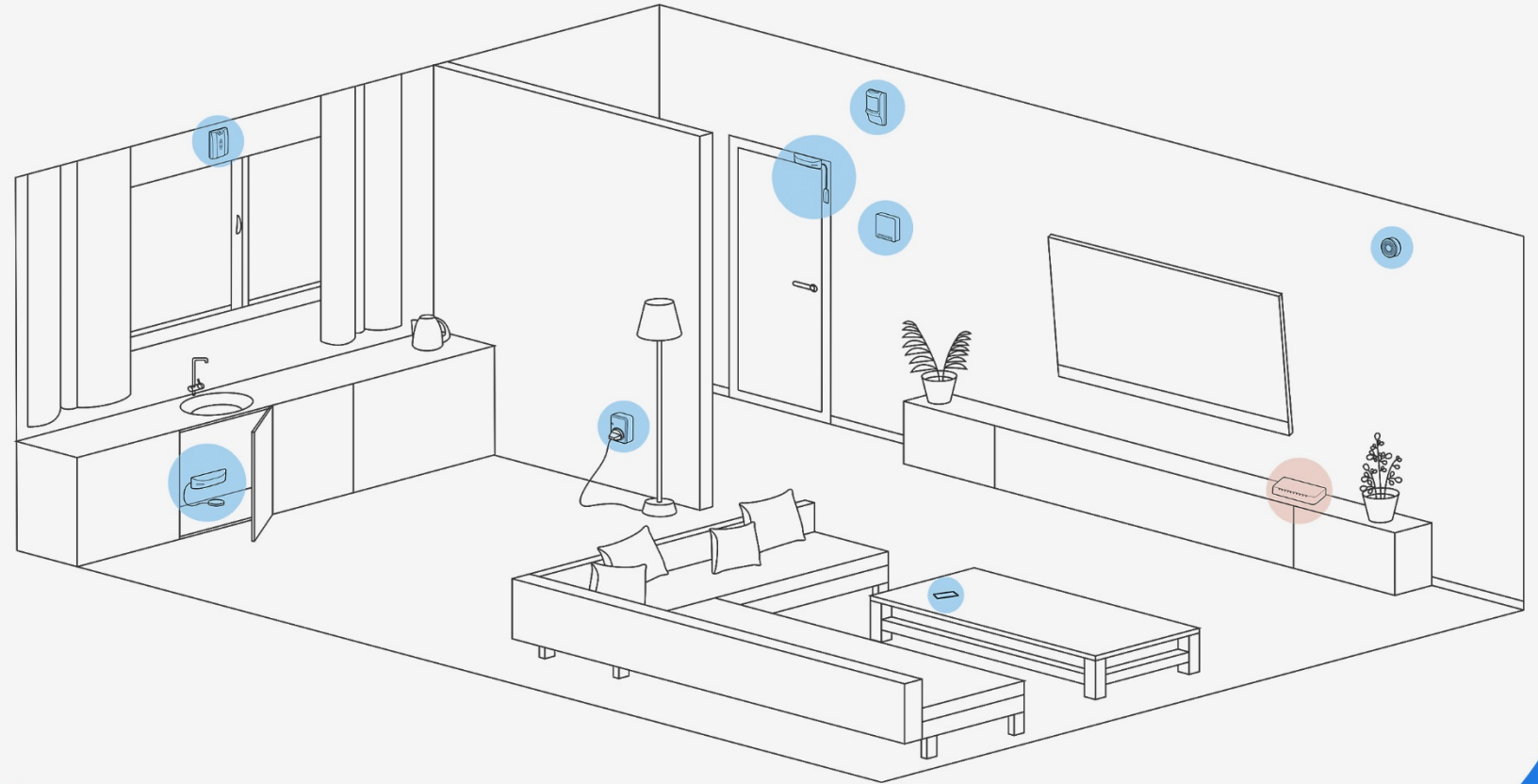


HOW IT WORKS

“

The controller is not a separate device, but a built-in module in a home router. Its main task is to unite all wireless devices into a single ecosystem.

It collects and distributes data from sensors and received commands from the user.

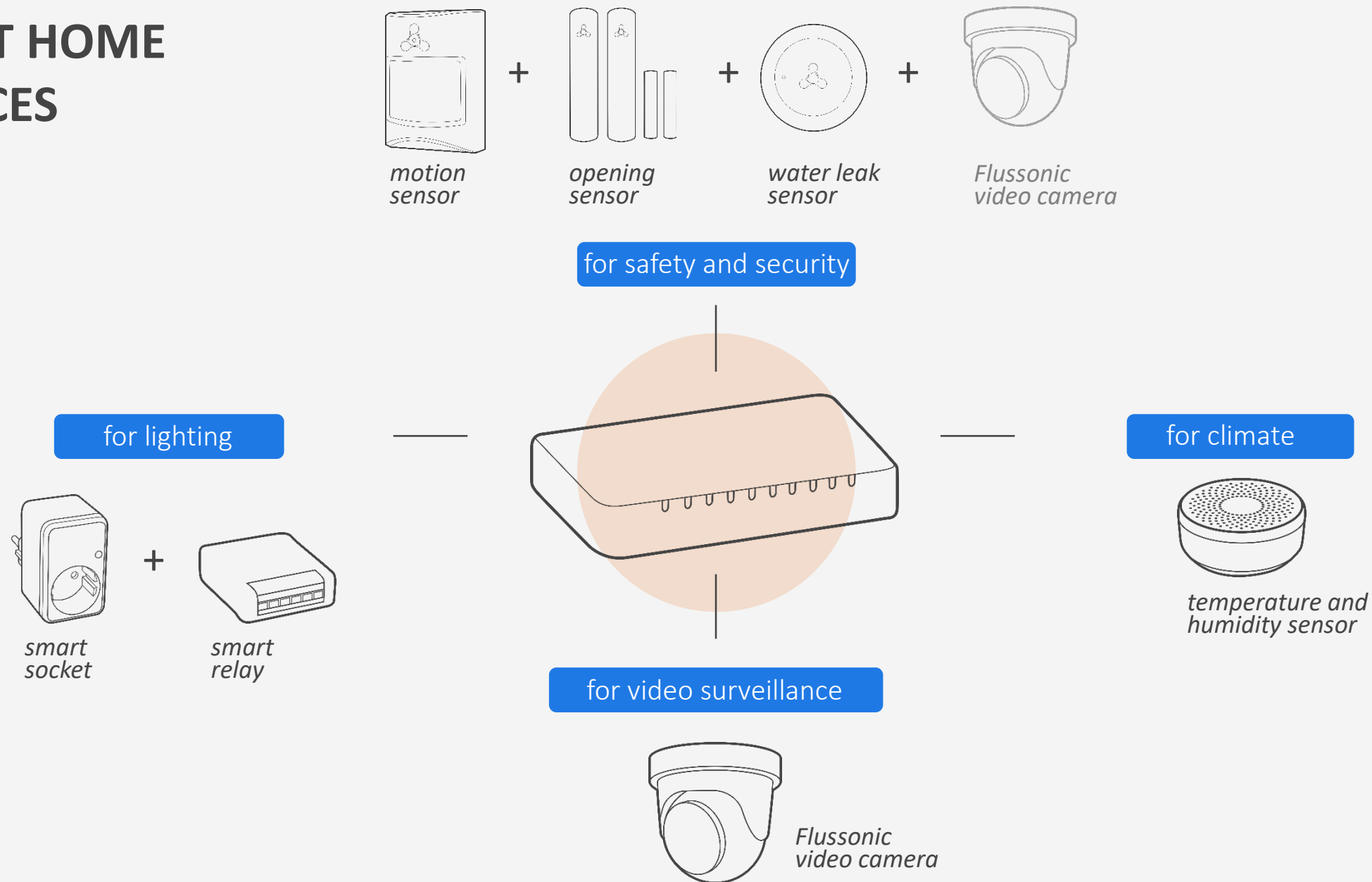


“

The user controls the operation of the smart home through a mobile application. It displays all the information about the condition of the house, as well as sets up devices and services.

It also creates its own scenarios for the operation of devices. For example, turn off the light when no one is in the room, or turn on the night light in the nursery after 22:00.

SMART HOME SERVICES



SECURITY SERVICE



As soon as the sensor, which is in security mode, is triggered, the cameras will immediately show the cause of the alarm.



“

Notify about any emergency situation. In the application, the user puts the house on guard and calmly goes about his business. He will immediately receive a notification if an uninvited guest breaks down the door and enters the apartment or a bully breaks a window.



Security
mode



Photo and
video fixation



Sending
notifications

protection from freelance activities

entry into the territory of the house



LIGHTING SERVICE



“

It will create an individual lighting system even in an apartment with a ready repair: smart devices do not require construction work and are easy to install.

The user chooses the control method himself: through the application, by pressing a button or by voice.



Executing
Scripts



Saving energy
consumption



Integration with
other manufacturers

light control

main lighting control

control of additional light sources



CLIMATE SERVICE

“

Will inform the user about the condition of the house in his absence. Sensors will detect and warn of any emergency. For example, if water flows through the drain hose in the washing machine.

Sensors of the *AIR* series sensitively monitor air quality indicators. If the parameters do not match the required ones, the application will report this - the interface is designed in such a way that visually important information is read faster.



Easy
installation



Analytics



Integration with
other manufacturers

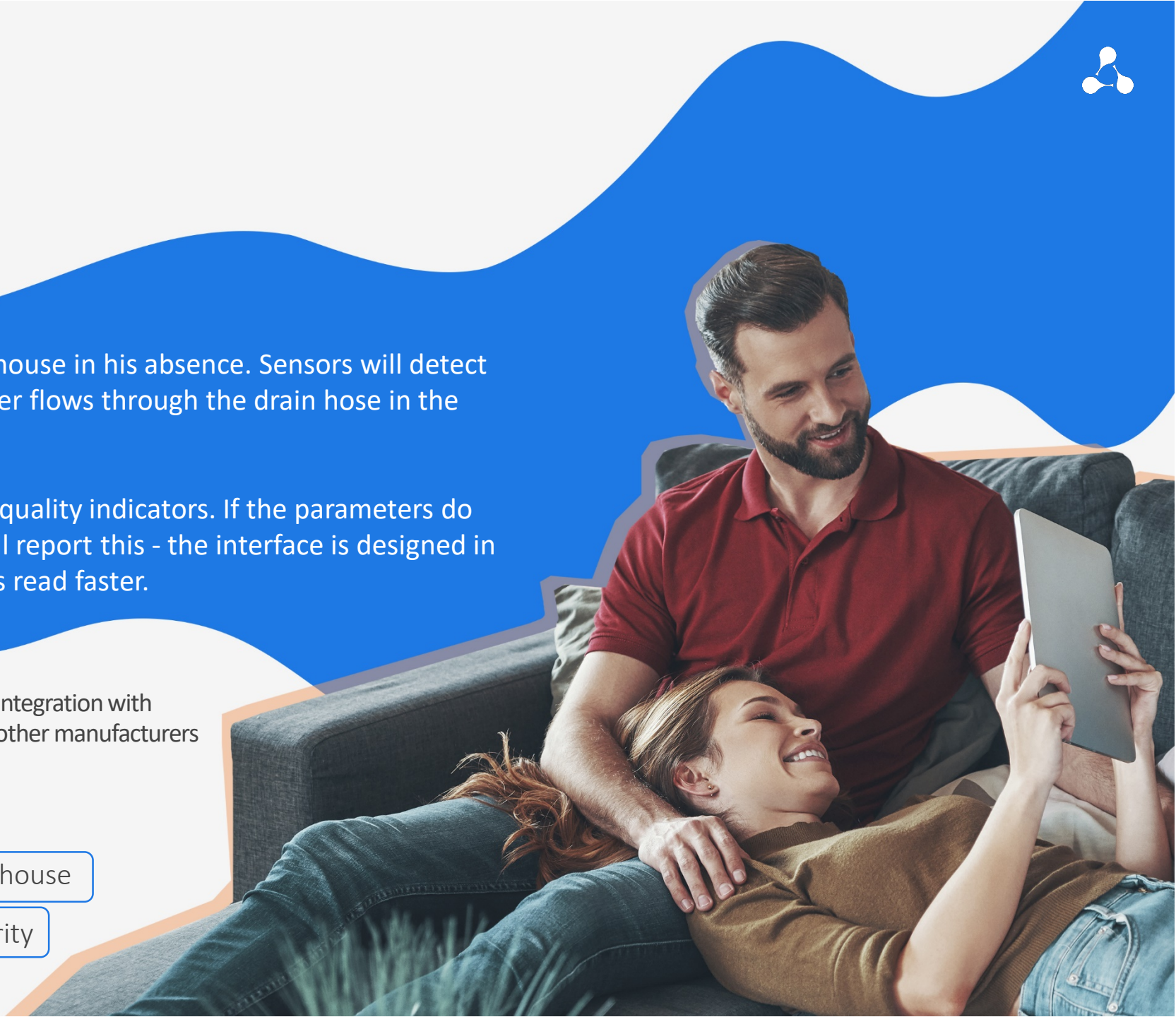
comfortable environment

maintaining a comfortable level of climate in the house

data analysis

water leakage

home security



VIDEO SURVEILLANCE



Photo and
video fixation



Data
Archive



“

It will show what is happening in the house in the absence of the user.

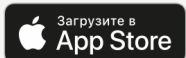
It will send an instant message about any suspicious activity if the smart home is secured. Cameras will record threats or emergencies, and the system will send a photo or video of what is happening in real time to the owner's device through the application.

under control

push notifications

archive of records

ELTEX HOME MOBILE APP



It will configure the operation of the smart home individually for each user. The management of the application is intuitive – even a beginner will master it.

Allows you to select only the necessary services.

The application can be based on a cloud or local platform — the user chooses where it is more convenient for him to store data.



Sending
notifications



Executing
Scripts





ELTEX SMART CLOUD

CLOUD PLATFORM



TRANSMITS AND ANALYZES DATA WHEREVER
IT IS MORE CONVENIENT FOR THE USER

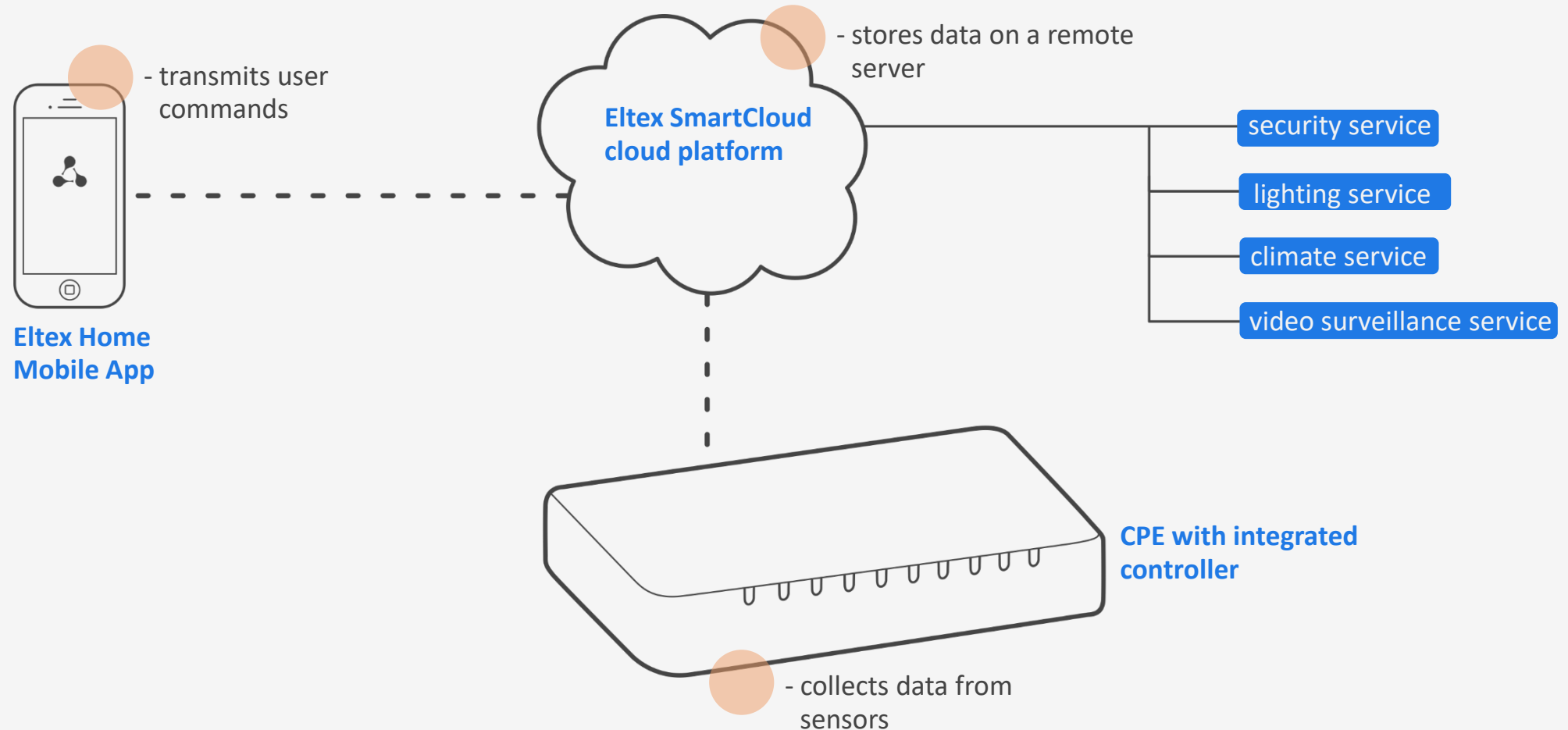
“

Commands and trigger signals are received and processed on the server in the cloud platform and then transmitted through the hub to the application. This solution does not require additional data storage equipment. Commands and trigger signals are received and processed on the server in the cloud platform and then transmitted through the hub to the application.

This solution does not require additional data storage equipment.



THE SCHEME OF THE CLOUD SOLUTION



CONTROLLER

AS PART OF CPE (ONT)

- 1 Ensures the operation of the smart home system
- 2 Provides Internet access to multimedia services



“CPE (ONT) supports Wi-Fi and Z-wave protocols. With Wi-Fi devices, it works like a router, transmitting signals from them directly to the platform. And with Z-wave devices - as a controller. First, it collects and processes data from them, and then transmits the information to the platform.



Integration with
other manufacturers



MODEL RANGE



Ethernet

RG-35-WZ

1 WAN GE / 4 LAN FE

Wi-Fi 2,4 / 5 GHz | EasyMesh | MIMO 2:2
Z-Wave



Ethernet

RG-5440G-WZ

1 WAN GE / 4 LAN GE

Wi-Fi 2,4 / 5 GHz | EasyMesh | MU MIMO 4:4
Z-Wave



PON

NTU-RG-5420G-WZ

1 GPON / 4 LAN GE

Wi-Fi 2,4 / 5 GHz | EasyMesh | MIMO 2:2
Z-Wave



PON

NTU-RG-5440G-WZ

1 GPON / 4 LAN FE

Wi-Fi 2,4 / 5 GHz | EasyMesh | MU MIMO 4:4
Z-Wave

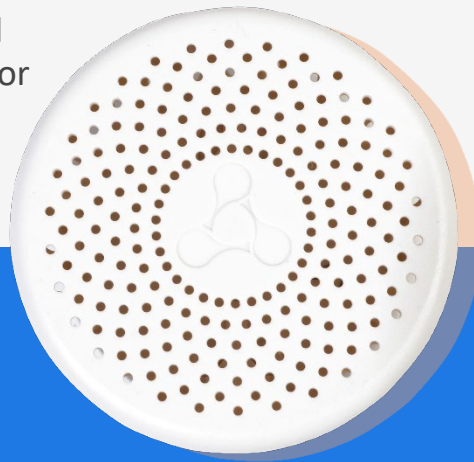


SENSORS

They work on the basis of the Z-wave economical data transfer protocol, so their battery charge will last up to 5-6 years. Drilling of walls is not required for their installation- they are installed in any convenient place.

SZ-AIR-HTQ01

temperature, humidity and
air quality monitoring sensor



SZ-WLK rev.B

*water
leak
sensor*





DEVICES

They work using Wi-Fi technology —the lighting in the apartment can be under control even while standing in traffic. A smart relay organizes the control of the main and decorative lighting, and a smart socket connects any additional light source to the ecosystem: a table lamp or a wall night light.

SW-PLG01

smart
socket



SW-RLY01

smart
relay





SENSORS

To put the sensors into security mode, just press and hold the Security service button in the application – that's how, in one click, it's easy to put the whole house under surveillance.

SZ-MCT rev.C

*opening
sensor*



SZ-PIR rev.C

*motion
sensor*





We are open and ready to discuss business!



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Kazakhstan,
09:00 — 18:00 (GMT+6)
Monday – Friday



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