

Use cases

Fixed VoIP/IMS security

The Cirpack SBC provides security, interoperability and routing features to fixed NGN or IMS deployments.

Regulated interconnection

Various national regulators specify their own SIP interconnection profiles to ease interoperability between telcos. Cirpack SBC supports many national SIP profiles and provides interoperability tools to adapt its behavior to dedicated SIP variants.

VoLTE/ViLTE/VoWifi

Deployed on Voice and Video Over LTE (VoLTE, ViLTE), and Voice over Wifi (VoWifi) networks, the Cirpack SBC allows to manage QoS dedicated to voice and video calls, and handles gracefully handovers from one radio coverage (such as 4G) to another (such as 2G, 3G or Wifi).

Benefits

Scalability – Cirpack SBC protects SIP networks from 1.000 to millions of subscribers.

Flexibility – Cirpack SBC is available in 3 packages: as a hardware product, as a software running on COTS servers and virtualized environment, and in Cirpack Cloud.

Interworking – Extended SIP interco solution with advanced SIP interoperability, support of set of national interconnection SIP variants and SIP/SIP-I conversion.

Portability – easy deployment of number portability solution with the number portability database add-on.

Media handling – Cirpack SBC embeds advanced voice transcoding with AMR and OPUS support.

Emergency calls – Cirpack SBC enriches signaling with caller location (e.g. PIDF-LO) in both full SIP networks and non-SIP terminals networks.

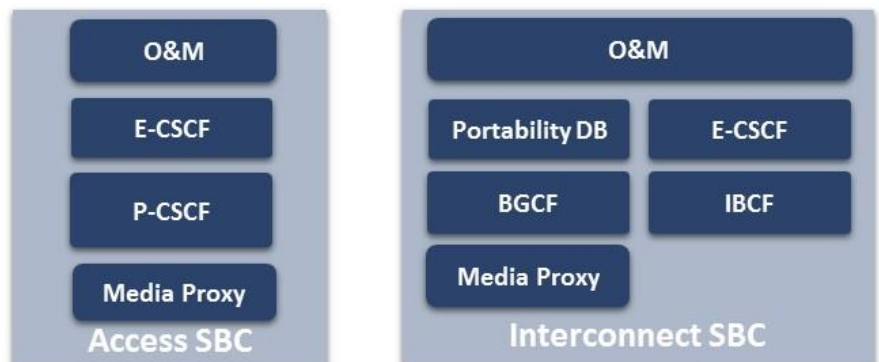
More than security...

SIP communications, first telephony, but also interactive voice services, video calls, conference and unified communications, have to be protected from threats coming from access networks and interconnections. Session Border Controllers (SBC) are ideally located at the borders of SIP infrastructures to provide topology hiding, protection against Denial of Service (DoS) attacks, authentication and authorization of SIP endpoints, policy enforcement and call admission control.

More than answering these security needs, the Cirpack SBC also offers advanced features: transcoding, encryption, protocol adaptation to various technical and national standards, routing of calls including number portability, resiliency mechanisms, and monitoring tool of the SIP communications.

Cirpack SBC foundation

Cirpack SBC benefits from the Cirpack know-how in public network voice services. Fully based on 3GPP IMS standards from its inception more than 10 years ago, the Cirpack SBC has evolved along the years to leverage the standardized IMS functions with security, interoperability and operating features identified by Cirpack in its NGN and IMS deployments.



The Cirpack SBC implements the following functions:

- P-CSCF to provide control of end-users and access network, it also embeds in VoLTE deployments ATCF and EATF functions,
- E-CSCF to handle emergency calls, enrich signaling according to local regulation, and route calls based on the subscriber location,
- BGCF to route calls inside and outside the operator's network, it is based on advanced routing rules and portability database,
- IBCF to provide security, interworking and interconnection capabilities to connect the operator SIP network to other carriers,
- Media proxy to end and relay media streams for accepted traffic and possibly encrypt or decrypt encoded communications.
- Software transcoding module, dedicated to voice transcoding needed in heterogeneous networks

Key features

Security

- ▣ Core network protection
 - Topology Hiding
 - Dynamic pinhole allocation by RTP forwarder (NAT function)
 - Deep packet inspection/SIP compliance
 - SIP DoS/DDoS protection: Driver Limiter mechanism
 - SIP DoS User Limiter mechanism
 - Dynamic IP blacklisting
- ▣ Access control
 - REGISTER frequency regulation (Access SBC)
 - Access control - IP whitelist per user
 - Trusted/Untrusted peer and Privacy Management
 - SIP Policy enforcement: normalization, domain filtering and media policy control
 - Codec admission control, discarding and prioritization
 - RTP control
 - Priority regulation
 - Encryption: TLS, SRTP, IMS AKA
 - ATIS 1000082 RESTfull interface for STIR/SHAKEN

Interoperability

- ▣ Signaling interoperability
 - VLAN isolation and IP overlapping
 - NAT traversal facility: autolearn
 - SIP over TCP and TCP fallback
 - IPv6/IPv4 conversion
 - PBX trunking
 - White label domain at access SBC
 - Domain name management for Interconnect SBC
 - Phone number substitution on BGCF
 - Management of compact header names
 - "ITRANS" feature: ISUP, SIP, SIP-I, SIP-T conversion and interworking
 - Advanced SIP header manipulation
 - PRACK/UPDATE interworking
 - UPDATE/reINVITE interworking
 - History info/Diversion header interworking
 - SIP-R support (ETSI TS 103 389)
- ▣ Media interoperability
 - Transcoding, transrating
 - DTMF detection RFC2833/G.711/INFO
 - Fax T38 relay
 - Media proxy Bypass -per domain/prefix
- ▣ Accessibility through remote firewalls: keepalive methods including RFC 4028
- ▣ VoLTE IR.92 support
 - Support of Rx interface
 - ATCF/ATGW functions for eSR-VCC
 - IR.65 roaming support
- ▣ Call recording: SIPRec Client

Routing

- ▣ Routing inherited from Cirpack softswitch
- ▣ Route reselection mechanism
- ▣ Phone number substitution
- ▣ Interface to redirect server
- ▣ Embedded portability DB option
- ▣ Routing of MESSAGE, OPTION, PUBLISH, REFER, SUBSCRIBE and NOTIFY
- ▣ Diversion control
- ▣ Emergency call routing with fixed subscriber location and mobile subscriber location

Resiliency

- ▣ SBC redundancy
- ▣ Detection of network element failures with quarantine

Operation and management

- ▣ Available as VNF
- ▣ Administration by Web Interface and Command Line Interface
- ▣ Statistics, SNMP alarms
- ▣ Troubleshooting: trace one call, kill call command
- ▣ Billing:
 - 3GPP Rf interface: ACR generation
 - Cirpack CDR
- ▣ Regulatory requirement: Lawful interception and emergency calls

About Cirpack

Cirpack is a leading software company that provides scalable and multi-service IP Core Network solutions for the new generation of service providers.

The Cirpack product lines are based on highly innovative technological solutions:

- Softswitches and gateways for NGN deployments,
- SBC for network or service operators SIP security, and
- IMS for fixed and mobile networks.

Renowned for the robustness, scalability and reliability of its solutions, Cirpack is the ideal partner, offering agility and responsiveness to support its customers in their growth strategies.

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