

## Use cases

### Fixed VoIP/IMS security

The Cirpack SBC provides security, interoperability and routing features to fixed NGN or IMS deployments such as DSL, or cable networks.

### 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.

**Interco** – 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.

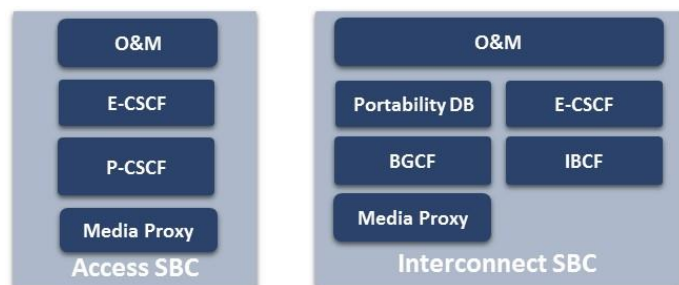
## More than security...

Services providers who offer SIP communications, basically telephony, but also interactive voice services, video calls, voice and video conferencing, unified messaging, and presence, have to protect their SIP infrastructures from threats coming from end-user access or interconnections with other networks. Ideally located at the borders of their networks, SIP security is mainly about protection from Denial of Service (DoS) attacks, topology hiding, authentication and authorization, policy enforcement and call admission control.

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

## Cirpack SBC foundation

Cirpack SBC benefits from the Cirpack know-how in voice call switching, implementing advanced routing, traffic control, and portability features making it a unique and simple solution for interconnection and transit function in multimedia networks.



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 requirements identified by Cirpack in its NGN and IMS deployments.

The Cirpack SBC is designed around the following IMS functions:

- P-CSCF to provide end-user and access network control, preventing intrusion and theft of service
- BGCF to route calls inside and outside the operator's network, 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
- E-CSCF to handle emergency calls, enrich signaling according to local regulation, and route calls based on the subscriber location
- Media proxy to control the media by opening dynamic pinholes for accepted traffic, and eventually transcodes and/or encrypts and decrypts media streams.

## 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
  - RTCP control
  - Priority regulation
  - Encryption: TLS, SRTP

### Interoperability

- Signaling interoperability
  - VLAN isolation and IP overlapping
  - SIP over TCP and TCP fallback
  - conversion IPv6/IPv4
  - PBX certification number
  - White label for access SBC
  - Domain name management for Interconnect SBC
  - Management of compact header names
  - "ITRANS" feature: ISUP, SIP, SIP-I, SIP-T conversion and interworking
  - Advanced SIP header manipulation
  - PRACK/no PRACK interworking
  - UPDATE/reINVITE interworking
  - History info/Diversion header interworking
  - Phone number substitution on BGCF
- Media interoperability
  - Control of media interworking
  - Transrating
  - DTMF detection RFC2833/G.711/INFO
  - Fax T38 relay
  - Media proxy Bypass -per domain/prefix
- NAT traversal facility: autolearn
- Accessibility through remote firewalls: keeplive methods
- 3GPP IMS Rx interface
  - Support of PacketCable 2.0
  - ATCF/ATGW functions for eSR-VCC

### 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

- SBC Web Interface
- Command Line Interface
- Statistics
- Peer supervision
- SNMP
- Troubleshooting: trace one call
- Billing
  - 3GPP Rf interface: ACR generation
  - Cirpack CDR
- Regulatory requirement: Lawful interception

## About Cirpack

Cirpack is a leading software company that provides "Full IP" scalable and multi-service IP Unified Communications and Core Network solutions for the use of corporates, telecommunications operators and service providers.

Cirpack solutions help telecom operators to address both "Home" and "Enterprise" markets.

Cirpack product lines are based on highly innovative technological solutions designed for Unified Communications (Voice, Video, Data, WebRTC, Softphone, Fixed Mobile Convergence ...) and Core Network (Softswitch and IMS, SBC, SIP Trunking, Centralized routing ...) and associated professional services.

Cirpack technologies are marketed both in Licence and SaaS mode and benefit of a 24/7 support. Cirpack has offices in France, Germany, Mexico, Lebanon and Vietnam. Cirpack operates via a VAR network. More than sixty million business and residential customers daily enjoy the benefits of Cirpack solutions and services through strong relationships with over 120 customers acting on three continents.

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

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