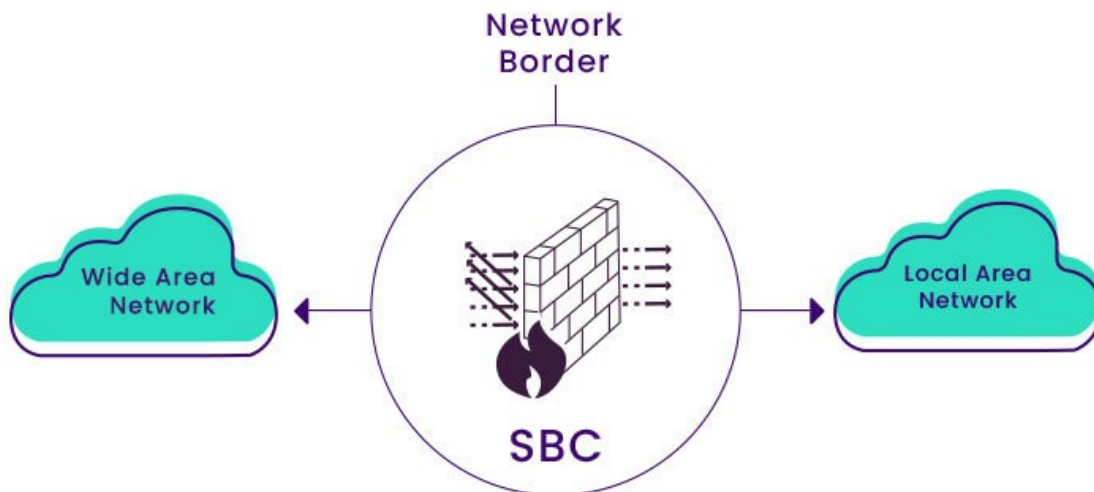# CHAKAVAK SBC

Chakavak Telecommunication

SBC

SBC is abbreviate for Session Border Controller. SBCs is like a Firewall for VOIP solutions. They are often configured as a SIP Back-To-Back User Agent. In addition to firewall functions, they also may provide services like NAT traversal

SBCs are instrumental in controlling and managing SIP (Session Initiation Protocol) sessions. Enhance communication security by implementing features such as firewalling, encryption, and security policies for SIP traffic. SBCs help reduce disruptions in VoIP networks, thus increasing overall reliability and by controlling and optimizing traffic, SBCs contribute to enhancing the quality of VoIP services.

Chakavak SBC

The Chakavak Session Border Controller is a mature, proven carrier-grade product for VoIP infrastructures deployed by many Service Providers and enterprises in Iran, suitable for Peering, SIP trunking solutions and IMS interworking.

This feature-rich SBC product provides scalability and high availability as standard whilst offering additional specialist fraud prevention and lawful intercept modules on request.

The Chakavak SBC is fully virtualized allowing for rapid delivery into a client's data center or cloud environment.

Chakavak SBC's features

- **Topology and Carrier hiding:** Hide applications in a private network with private IP addresses.
- **VoIP Protection:** Protects VoIP networks from malicious attacks.(VPN,fraud,attack detection)
- **Call Routing:** Provide low-cost routing and load balancing across trunks.
- **Call Limiting:** Limit the amount of traffic through call paths to ensure quality of service and mitigate risk of toll fraud.
- **Simplified Licensing:** Chakavak SBC is field upgradable and licensing is per-session-based, meaning all the features are always included.
- **Media Transcoding:** Generate the best quality of service the connection can provide, from HD voice quality to small bandwidth optimized codecs.
- **Hardware Redundancy:** Ensure business continuity during catastrophic hardware failures by mirroring two SBCs together.
- **Protocol Translation**: These devices have the capability to translate various protocols, including IPv4 to IPv6, or port manipulation.
- **Intelligent Routing:** Chakavak SBC provide advanced routing capabilities based on context and defined policies for SIP traffic.
- **NAT Support:** They assist in connecting to devices behind NAT (Network Address Translation) through NAT Traversal mechanisms.
- **Integration with VoIP Systems:** Chakavak SBC offer the flexibility to connect with various VoIP systems seamlessly.
- **Traffic Analysis and Management:** Advanced tools within Chakavak SBC allow for in-depth traffic analysis and management for SIP traffic optimization.
- **Support for Monitoring and Reporting:** Chakavak SBC facilitate monitoring and reporting, aiding in network performance improvement.

Chakavak SBC Technical features:

Chakavak SBC incorporates a dedicated component that is responsible for handling RTP (voice and media packets). This component operates independently and is directly controlled by Chakavak SBC. One of the key advantages of this separate architecture is its versatility in accommodating any number of instances of the component, depending on the network's requirements. This capability empowers the system with load balancing capabilities, ensuring optimal distribution of workload across the network. Chakavak SBC can be Scalable from 1,000 to 10,000 concurrent sessions seamlessly per each node.

- **Media Transcoding:** Chakavak SBC supports real-time media transcoding, allowing different codecs and media formats to be seamlessly translated and ensuring compatibility between endpoints.
- **Session Border Controller Redundancy:** High availability and redundancy options, such as active-standby or load balancing, ensure uninterrupted service in case of hardware or network failures.
- **Advanced SIP Header Manipulation:** Chakavak SBC offers granular control over SIP headers, allowing for custom manipulation of headers for routing and call control.
- **Call Admission Control:** Advanced algorithms for managing call admission based on network capacity and quality of service requirements.
- **TLS and SRTP Encryption:** Robust support for Transport Layer Security (TLS) and Secure Real-time Transport Protocol (SRTP) to secure signaling and media streams.
- **Quality of Service (QOS) Enforcement:** Chakavak SBC can prioritize and manage traffic to ensure consistent and optimal call quality.
- **Distributed Architecture:** Scalable architecture that supports distributed deployment for handling high call volumes and ensuring low latency.
- **SIP Interoperability:** Extensive testing and support for interoperability with various SIP endpoints, PBX systems, and VoIP carriers.
- **Detailed Call Logging:** Comprehensive call logging and reporting capabilities, including call tracing and troubleshooting tools for diagnostics.
- **IPv6 Support:** Full support for IPv6 to ensure compatibility with modern IP networks.
- **Packet Inspection and Deep Packet Inspection (DPI):** Chakavak SBC can inspect SIP packets and perform deep packet inspection for security and traffic analysis.
- **Geographic Redundancy:** Ability to deploy Chakavak SBCs in geographically redundant data centers for disaster recovery and regional redundancy.
- **API Integration:** Provides APIs for custom integration with existing network management and monitoring systems.
- **Session Rate Limiting:** The ability to limit the number of concurrent sessions per user or device to prevent overloading the network.
- **Load Balancing and Failover:** Intelligent load balancing of SIP traffic and automatic failover in case of SBC node failures.
- **Reliability and Uptime:** 99.9% uptime achieved after Chakavak SBC implementation

Data points

Network Traffic Analysis	Before Chakavak SBC implementation	After Chakavak SBC implementation
Average Bandwidth Utilization	85%	50%
Call Drop Rate	12%	2%
MOS (Mean Opinion Score)	3.5	4

Security Metrics		
Monthly Security Incidents	15	3
Intrusion Attempts	50	1

Call Quality Metrics		
MOS (Mean Opinion Score)	3.7	4.4

Latency Reduction		
Call Setup Latency	150ms	40ms
Media Latency Reduction	80ms	10ms