# AudioCodes Mediant SBCs for Service Providers

DATASHEET

## AudioCodes Service Provider SBCs - Highlights

### Applications

- Interconnect SBC for peering and wholesale services
- SIP trunking
- Microsoft Teams Direct Routing
- Hosted PBX
- Hosted UCC as a Service
- Residential VoIP
- OTT services, connecting SIP and WEB-RTC clients
- Managed E-SBC and MSBR

### Key Benefits

- Comprehensive, field-proven interoperability
- Flexible SIP protocol manipulation
- Carrier-grade availability and scalability
- Available as hardware, software and virtualized
- Robust data security
- Powerful media handling capabilities
- Cost-effective floating license
- Built-in WebRTC support
- Reduced operational costs with centralized management

## Introduction

The world of global telecommunications is a highly competitive market where the goals of growing revenues and preventing customer churn have to balance the challenges of widespread deregulation and keeping up with technological advances. As the transition towards all-IP communications networks gathers pace, it is essential for service providers to maintain their agility by delivering seamless and flexible connectivity with other operators' networks on the one hand and customers (business and residential) on the other. At the same time, their core networks need to guarantee "five nines" high availability and ensure robust security to protect their own infrastructure as well as that of their customers.

The AudioCodes Mediant family of session border controllers (SBCs) provides the scale, security, flexibility and high availability required by service and cloud providers for building and delivering next-generation communications services. The Mediant SBC software is available on proprietary hardware, COTS servers or as a virtualized solution for private and public data centers and clouds, supporting flexible deployment options and smooth migration strategies. With rich access, interconnect and WebRTC capabilities and leveraging widely deployed, advanced home-grown signaling and media processing technologies, the Mediant SBCs are the perfect solution for service providers as they advance towards all-IP communication networks.

## AudioCodes SBCs for Service Providers

In a service provider environment, AudioCodes Mediant SBCs function as interconnect SBCs providing reliable connectivity between different operators' networks and as access SBCs facing the service providers' business customers.

*AudioCodes Mediant SBCs support multi-tenancy ensuring complete separation between tenants' traffic, configuration and call routing plan.*

SBCs are typically deployed in the data centers of service providers that offer SIP trunk, hosted UC, hosted contact center or other VOIP services. Among the tasks performed by SBCs are:

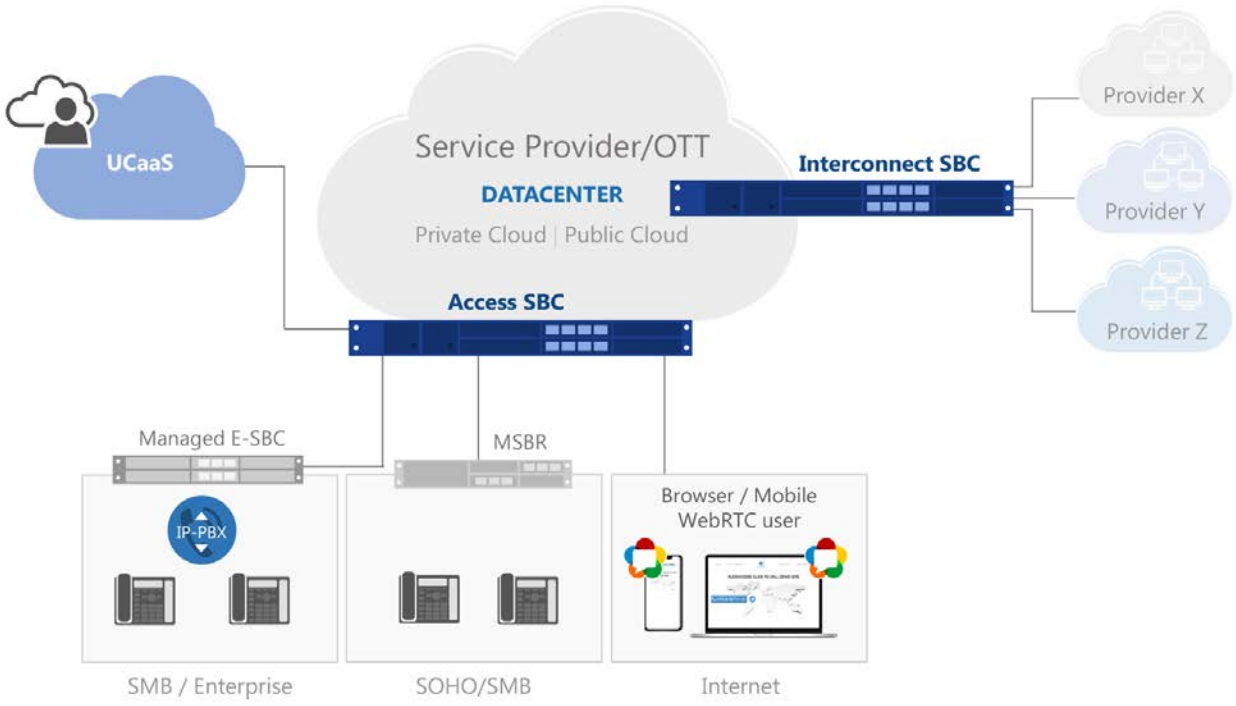
- protect the network from DoS/DDoS attacks, fraud and eavesdropping
- perform protocol and media interworking
- route voice calls between end customers and peering service providers
- guarantee service availability and high voice quality
- enable full visibility and monitoring of the VOIP traffic.

When deploying an access SBC operators are faced with two options: either one SBC per end customer (tenant) or supporting multiple tenants on a single SBC platform. The latter option saves resources and simplifies management. AudioCodes Mediant SBCs support multi-tenancy ensuring complete separation between tenants' traffic, configuration and call routing plan.

When deployed for interconnection, the Mediant SBC handles security (topology hiding, encryption, CAC, DoS/DDoS protection etc.), routing between peering partners and interoperability functions such as number normalization, SIP-to-SIP-I conversion and voice codec transcoding.

For smaller locations, a single SBC can function both as an interconnect SBC and as an access SBC simultaneously. In virtualized environments, the Mediant SBCs support all leading hypervisors, including public clouds and orchestration systems running on NFV-compliant networks. The Mediant virtualized SBC (VNF) is available as an integrated SBC or in a cloud-native microservices cluster architecture with dynamic elastic scalability.

*A single SBC can function both as an interconnect SBC and as an access SBC simultaneously.*




## Security

Located at the edge of the service provider network and fronting untrusted networks, AudioCodes SBCs protect the service provider internal network from DOS\DDOS, fraud and eavesdropping, hiding internal topology and enforcing call admission policies defined by the service providers.

The Mediant SBCs handle security in multi-layer approach:

- Access lists and dynamic black lists to block suspicious sources and provide wire-speed DOS/DDOS protection
- Integrated intrusion detection and prevention
- SIP application firewall functionality, including authentication, encryption, fraud detection and topology hiding

AudioCodes SBCs' security mechanisms are built from the ground up to work on any x86 server, whether COTS, virtual machine or public cloud deployments, and do not require any proprietary hardware.

## Protocol Interworking

AudioCodes SBCs are based on a home-grown SIP stack that has been deployed globally in thousands of production setups for over two decades. AudioCodes SBCs boast field-proven interoperability with a long list of IP-PBX vendors in multiple environments (e.g. service provider networks and contact centers) and have achieved formal certifications with multiple unified communication and call center environments such as Microsoft, BroadSoft, Genesys and Alcatel Lucent, assuring seamless service delivery.

*AudioCodes SBCs boast field-proven interoperability with a long list of IP-PBX vendors in multiple environments*

The rich SIP protocol interworking capabilities provided by the Mediant SBC include a comprehensive range of flexible and easy-to-use message manipulations and scripted call control actions that allows SBC users to overcome virtually any interworking problem that might be encountered in the field.

AudioCodes' vast experience in deploying its SBCs in hundreds of environments has led to the creation of a comprehensive interoperability database. This database lies at the heart of Mediant SBC Wizard utility which helps administrators and technicians to set up AudioCodes SBCs in a matter of minutes.

## Media Handling

Building on over 25 years of voice expertise, AudioCodes Mediant SBCs incorporate a rich media engine that supports multiple media types (including audio, video, fax, BFCP) with the ability to perform a variety of media conversions.

The Mediant SBC supports voice codec transcoding for a wide range of fixed, mobile and Internet codecs, including variable rate wideband coders such as WB-AMR, SILK and Opus. Media transcoding is not limited to voice only and supports fax and DTMF translations, answering machine detection and silence suppression.

*The Mediant SBC supports voice codec transcoding for a wide range of fixed, mobile and Internet codecs*

In addition, the Mediant SBC has an embedded voice quality monitoring probe and enhancement engine that can monitor and detect voice quality problems and dynamically adjust the codec, rate, redundancy level and packetization time to improve the voice quality. Voice quality data can be sent to external management systems for end-to-end voice quality monitoring, alerting and analysis purposes.

The Mediant SBC media engine and related functionality are supported on proprietary hardware platforms, utilizing hardware DSPs, as well as on virtualized deployments supporting general purpose CPUs and dedicated GPU acceleration[1].

## Routing

The Mediant SBC includes a comprehensive, flexible and simplified embedded routing engine that assists service providers to manage complex networks with thousands of business customers and corresponding SIP servers or with routing policies requiring complicated number manipulation.

Call routing is made simple using a multi-stage routing and classification engine with the ability to integrate with external databases and collect routing information from sources such as local number portability platforms, CNAM, fraud and spam databases, using protocols such as ENUM, Rest API and LDAP.

*The Mediant SBC routing engine is highly flexible and its decisions can be based on a wide range of criteria to meet service providers' needs*

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[1] Roadmap

For large network setups consisting of multiple AudioCodes SBCs and third party servers, the AudioCodes Routing Manager (ARM) can be implemented to deliver simplified end-to-end routing and dial plan logic from a centralized location.

## Scale and Carrier-Grade Redundancy

The Mediant SBC product line is built around a highly scalable multi-core architecture for SIP, media forwarding, media processing and data plane networking. As such, a single integrated SBC can scale up to 70,000 sessions and 500,000 users on a 1U COTS server. For cloud and NFV deployments, the Mediant CE (Cloud Edition) employs a micro-services architecture enabling it to reach 40,000 sessions in virtualized (private/public cloud) environments, featuring cost-effective dynamic elastic scalability.

*A single integrated SBC can scale up to 70,000 sessions and 500,000 users on a 1U COTS server*

The Mediant SBCs support carrier-grade, 1:1 Active-Standby high availability, preserving call continuity during switchover. The Mediant CE SBC supports 1+1 redundancy for the signaling elements and cost-effective n+1 redundancy for media elements.

## Multi-tenancy Support

The Mediant SBC's multi-tenancy feature enables the SBC to support multiple business customers (tenants) on the same device while keeping each tenant as a separate entity from the point of view of configuration, connectivity and routing. Mediant SBCs support up to 5,000 distinct tenants per device.

Separation between tenants ensures that any configuration changes and monitoring of calls can be performed without affecting any other customers' traffic ("non-bleeding" architecture). Automation is supported in various methods (e.g. simple CLI scripts and REST) for tenant adds, moves and changes.

Tag based routing and classification can be used to reduce and simplify routing rules. That way a single routing and classification rule can be used to route traffic from the service provider towards different tenants, reducing the number of routing rules dramatically (from hundreds or thousands on other SBCs to few on the Mediant).

Regulatory compliance is supported by prioritizing emergency, call preemption, session replication LI support[2] and CDR local storage

## WebRTC Gateway

WebRTC technology enriches service providers' offerings by enabling them to deliver services such as click-to-call from customer websites and WebRTC-based soft clients for consumers and contact center agents.

*AudioCodes Mediant SBCs support built-in WebRTC gateway functionality*

[2] Integration with LI Mediation Device (LI-MD) is in the roadmap

AudioCodes Mediant SBCs support built-in WebRTC gateway functionality which enables simple integration of voice and video communications into browser and mobile applications.

AudioCodes provides client SDKs (JavaScript, native IOS and Android) to simplify integration of WebRTC clients (e.g. for click-to-call services) and WebRTC based contact center agents. The WebRTC gateway benefits from the built-in SBC functions such as security, high availability, authentication, call admission control, recording, quality monitoring and cost-effective simplified setup, eliminating the cost and operational overheads of an external WebRTC gateway solution.

## Comprehensive, Future-Proof SBC Portfolio

The Mediant SBC is a highly flexible and scalable solution. The software is suitable for virtually any scenario from very small locations up to high-capacity service provider core networks and can be deployed as an integrated hardware appliance and as a virtualized, software-only solution in private and public cloud environments. Mediant SBC customers can retain existing software licenses as they migrate from hardware to software and cloud deployments with feature parity guaranteed across all form factors.

*The Mediant SBC software can be deployed as an integrated hardware appliance and as a virtualized, software-only solution in private and public cloud environments*

## Flexible Licensing Options

AudioCodes SBCs offer a variety of licensing options to suit service provider business models. These options range from device-based licensing to various cost-effective pooled license schemes, which address the needs of large SBC networks.

*AudioCodes SBCs offer a variety of licensing options to suit service provider business models*

- Device-based license - each SBC is assigned a fixed license defining the maximum number of concurrent sessions allowed. Once a device reaches its maximum call capacity it will reject any additional call requests
- License pool- the service provider purchases a pool of licenses which it can assign to the SBCs in its network according to each device's needs. Licenses can be transferred from device to device depending on changing network traffic demands
- Floating license - the floating license option determines the maximum number of concurrent sessions available to the service provider across its entire SBC network. There is no specified maximum limit for any particular device. This option is especially attractive for service providers offering managed or cloud-based services as it grants them a high degree of flexibility

## Powerful Management Capabilities

AudioCodes SBCs support a wide variety of management and monitoring interfaces, e.g. a user-friendly, web-based GUI, CLI, Rest API, SNMP and more.

With vast experience in deploying and configuring solutions at customer locations across the world, AudioCodes recognizes the complexity of SBC configuration. To overcome this, AudioCodes offers an intuitive, assisted configuration tool with simplified SIP message language (featuring auto-complete assistance) that can be used throughout SBC configuration to enable basic message manipulations, external data base queries and conditional routing to be defined simply and rapidly.

The AudioCodes SBC Configuration Wizard tool includes hundreds of online, up-to-date interop templates that can be used to rapidly configure an SBC for the first time in many common use-case setups (e.g. SIP trunk, hosted PBX, PBX-to-PBX etc.). The underlying interoperability technology enables "any-to-any" interop between all IP-PBXs, SIP trunks and softswitches included in the Wizard's online database. Using the SBC Wizard, a newly configured SBC can be up and running, handling live sessions in less than five minutes.

*The AudioCodes SBC Configuration Wizard tool includes hundreds of online, up-to-date interop templates that can be used to rapidly configure an SBC*

Alarms, performance monitoring indicators and CDRs are provided through multiple channels, e.g. Radius, Syslog and CDR local storage.

For managing a large network of SBCs, AudioCodes offers a centralized lifecycle management solution – AudioCodes One Voice Operation Center (OVOC) - that combines management of voice network devices and quality of experience monitoring into a single, intuitive web-based application.

## AudioCodes SBCs for Service Provider - Highlights

AudioCodes SBCs offer a variety of licensing options to suit service provider business models. These options range from device-based licensing to various cost-effective pooled license schemes, which address the needs of large SBC networks.

- Seamless connectivity to business customers and peering partners using comprehensive, field-proven and flexible SIP interoperability and media handling technologies
- Increased customer satisfaction with cutting-edge voice quality monitoring and enhancements
- Carrier-grade high availability and UC security, ensuring 99.999% service availability and confidentiality
- Choose your datacenter technology – same SBC code base across all form factors – whether hardware appliance, software, virtualized, NFV or public cloud deployments
- Easy to configure, maintain and monitor using intuitive GUI, SBC configuration wizard and simple-to-use message manipulation language with self-assisted auto-complete options
- Supports large business customers' deployments with built-in "non-bleeding" multi-tenant configuration and monitoring and automation of adds, moves and changes
- Cloud-native SBC built on cost-effective micro-services cloud architecture with resource optimization using dynamic elasticity
- Ability to integrate with external application servers and databases e.g. local number portability, fraud detection, CNAM etc.
- Execute complex routing rules and policy with advanced embedded routing engine
- Enable browser-based user engagement with embedded WebRTC gateway
- Certified by Microsoft for Teams direct routing and Skype for Business voice connectivity
- A single SBC can function as interconnect and access SBC simultaneously saving costs and operational complexity in smaller deployments
- Cost-effective pooled licensing options for large and/or cloud deployments

## Specifications

| | |
|---|---|
| **General** | • Multiple modes of transparency ranging from B2BUA to stateful proxy<br>• SIP Registrar<br>• NAT traversal<br>• Integrated WebRTC gateway<br>• Integrated HTTP Proxy<br>• Feature parity across all platforms |
| **Protocol support** | SIP, SIP-I, SIP-T, SIP Connect, LDAP, ENUM, RADIUS, DNS, SNMPv2, SNMPv3, IPv.4, IPv.6, UDP, RTP, RTCP, TCP, TLS, SCTP, SIP Over WEB Sockets, ICE lite |
| **SIP protocol interworking** | • Interoperability with numerous Softswitches, IP-PBX vendors, contact centers platforms<br>• PRACK, Session timer, Delayed Offer, Early Media, Hold\Retrieve, Forking, Reinvite\Update<br>• Local handling of 3xx and REFER<br>• Comprehensive flexible and easy to use SIP message manipulations<br>• Scripted call control actions<br>• Surrogate registrations and authentication on behalf of IP-PBX and user devices |
| **Media handling** | • Media transcoding - G711, G729, G723.1, OPUX, SILK, AMR/WB-AMR, EVRC, G722<br>• Tones detection/generation – DTMF, Fax, AMD, Ring back\Held tones<br>• Media translations – RTP to SRTP, DTLS, Fax to G711, In band DTMF to RFC 4733<br>• Voice quality monitoring and enhancements – Embedded QoS probe, VoIPerfect dynamic quality enhancements<br>• Codec and media policers – enforce the set and order of media and codec types<br>• Available on HW, SW, Virtualized and public cloud deployments |
| **Security** | • Layer 3/4 and SIP access lists<br>• Scan tools detection and prevention<br>• Fuzzing attacks prevention<br>• Dynamic access control list<br>• Dynamic intrusion detection and prevention system (IDS\IPS)<br>• CAC and rate limiting enforcement<br>• TLS/SRTP and SIP digest authentication<br>• DoS/DDoS and SIP flood protection<br>• Topology hiding<br>• Dynamic Black listing |
| **Carrier grade** | • "Five nines" service availability 1:1 Active-Standby, local redundancy<br>• Call continuity in case of Switchover<br>• Scalable capacity<br>• Regulatory compliance<br>• Distributed architecture which allows Signaling and Media handling optimization<br>• 24/7 support |
| **Routing** | • Simple, yet powerful on board routing rules - multi stage and tag-based routing<br>• Various match criteria - Source and designation numbers, hostnames, IP addresses, applied tags, TGRP, Route headers, SIP-I attributes, Special routing rules for 3xx and REFER local handling<br>• Different routing destination types - Predefined SIP servers, Request-URI, registering users, tag-based routing<br>• Multiple routing methods - Alternative routing, forking, User and session aware load balancing, QOS and bandwidth-based routing, Least cost routing<br>• Routing based on external databases - ENUM, LDAP and HTTP/REST queries, e.g. CNAM, Fraud servers, local number portability<br>• Configurable WEB triggers for notifying external WEB servers about routing incidents<br>• Advanced centralized routing via AudioCodes Routing Manager (ARM) |
| **Policy and regulatory compliance** | • Rich Call admission control (BW, call rate, #calls, register rate, #users etc.)<br>• E911 Calls priority and preemption<br>• Routing based on location information (ELIN)<br>• Call back in case of call disconnection<br>• Lawful Interception (LI) integration *<br>• SIPREC |

* Roadmap

# AudioCodes Mediant SBCs for Service Providers

DATASHEET

## Specifications

| | |
|---|---|
| **Advanced access SBC capabilities** | • Multi-tenancy options<br>  - Connecting to up to 5K customers<br>  - Configuration and monitoring separation between tenants<br>  - Simplified routing rules<br>• SIP registration throttling<br>• Embedded WebRTC Gateway<br>  - Integrated WEB-RTC gateway, secured, highly available<br>  - Recording, monitoring, Authentication<br>  - Client SDK for Java Script, native IOS and Android |
| **Operations, administration and management** | • Simplified WEB-based GUI, SNMP, CLI, Rest API<br>• Intuitive, assisted configuration - Auto complete for message manipulations<br>• SBC Wizard with hundreds of online, UpToDate interop templates<br>• Alarms and Performance monitoring indicators<br>• CDR's – Radius, Syslog and CDR local storage<br>• Centralized lifecycle management console – AudioCodes OVOC |
| **Deployment and licensing options** | • Bare metal COTS<br>• Virtualized – VMWare, KVM, HyperV<br>• Public clouds - Azure, Amazon, Ali Cloud<br>• Cloud edition - Cloud-native microservices VNFCs.<br>• Flexible licensing models- Device, Pool, Float |

## Service Provider SBC Portfolio

| | Software and Virtualized SBC | | | Integrated SBC appliances | | |
|---|---|---|---|---|---|---|
| | **Mediant CE** | **Mediant VE** | **Mediant SE** | **Mediant 4000B** | **Mediant 9030** | **Mediant 9080** |
| **Deployment options** | AWS, Azure, GCP*** | VMware, KVM, HyperV, AWS, Azure, AliCloud, GCP* | Dedicated Intel Server (certified on DL 360 Gen10) | Integrated appliance | Integrated appliance | Integrated appliance |
| **Max. concurrent sessions** | 40,000** | 24,000** | 70,000 | 5,000 | 30,000 | 70,000/ 60,000**** |
| **Max. concurrent users** | 100,000 | 75,000 | 50,0000 | 20,000 | 200,000 | 500,000 |
| **Max. transcoded sessions*** | 26,000** | 600 | 2,100 | 5,000 | 1,100 | 2,100/ 30,000**** |

* for G711<->G.729

** Depending on the specific platforms and specific machines used

*** Roadmap

**** Media transcoding cluster


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