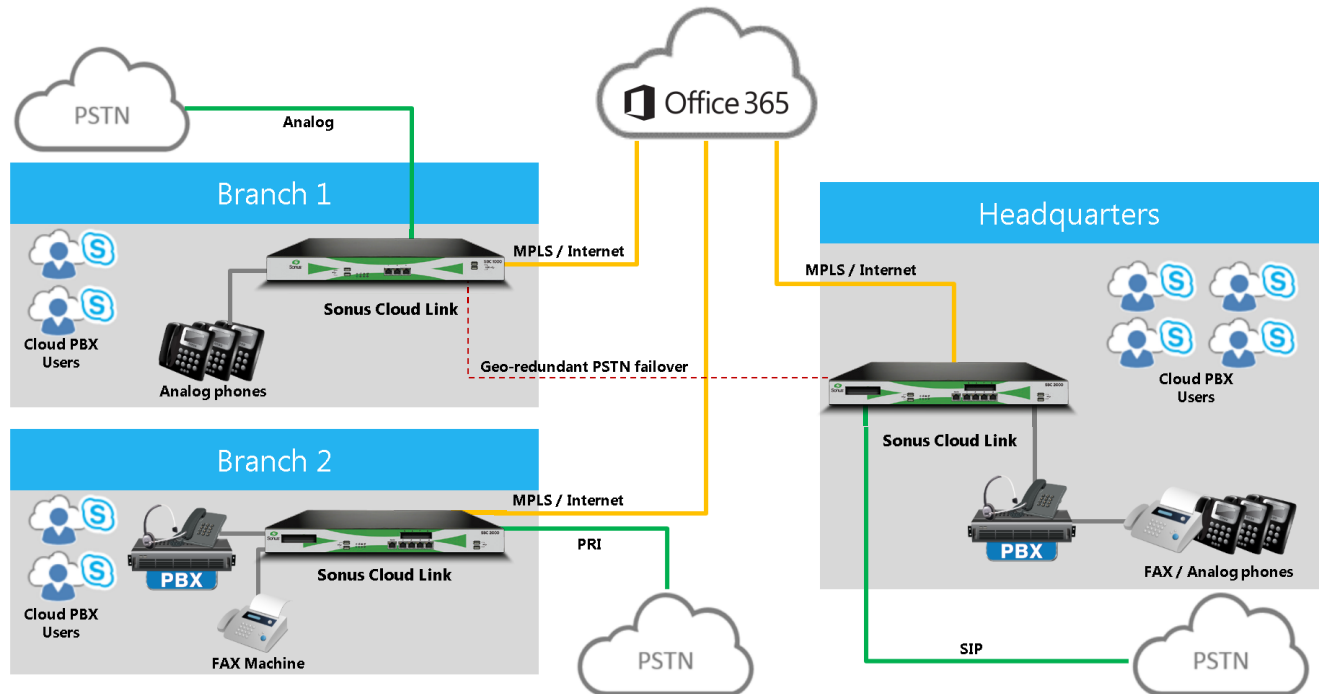


Sonus Cloud Link

Integrated Cloud Connector Edition Appliance for Skype for Business

Sonus Cloud Link integrates Microsoft® Skype® for Business Cloud Connector Edition in a single, flexible and secure appliance that reduces cost and complexity associated with server hardware and software procurement and implementation. Sonus Cloud Link scales to 500 concurrent Cloud Connector Edition calls, and preserves existing PSTN connectivity, supports legacy PBXs, analog devices, while providing enterprise-wide legacy dial plan integration to facilitate migration to Office 365® Cloud PBX. Powered by the Sonus SBC 1000 and SBC 2000 session border controllers, Sonus Cloud Link delivers robust security features to prevent unauthorized access and preserve communications through hacker attacks.



System Capabilities

- Sessions
 - Maximum number of total concurrent calls for Cloud Connector Edition: 500
- Business Continuity
 - Bypass relays (PRI-PRI, FXS-FXO) for emergency calls (e.g., 911)
 - PSTN fallback when WAN is down
 - Local survivability with BroadWorks
 - Multiple SIP trunking service provider support for redundancy
 - Site survivability through built-in SIP registrar
 - ITSP E911 Support
 - Redundant Ethernet ports and multiple spanning trees

Management Capabilities

- Operations, Administration and Management
 - Single, secure, web-based GUI with real-time monitoring
 - REST-based programmatic interface to remotely manage multiple SBCs
 - SNMP v2c for comprehensive network management using third-party management systems
 - Configuration backup and restore; Configuration upload from one site to another; Partial configuration import/export through REST
 - CDR reporting
 - Syslogs for troubleshooting, with support for free Sonus LX syslog server and log parser tool
 - Historical Stats and TCAs
- Authentication
 - Local user (User name/password)
 - Active Directory®
 - RADIUS

Media Services

- G.711, G.722, G.722.2 (AMR-WB), G.723.1 (5.3 kbps, 6.3 kbps), G.726 (32 kbps), G.729A/B (8 kbps), T.38
- Transcoding
- Video
- T.38 with CNG tone detection
- DTMF/RFC4733; Inband DTMF; SIP INFO/RFC-2833
- Voice Activity Detection (VAD)
- G.168 Echo Cancellation with standard 128 ms tail length
- Comfort noise generation and packet loss concealment
- Automatic call type detection – voice, fax or modem
- Music on-hold
- Generate call progress tones – ringback, busy, re-order
- RTP inactivity monitoring (dead call detection)
- RTP pass-through and media bypass
- RTCP/RTCP-XR
- Caller ID support

Signaling

- Maximum number of signaling groups: 100
- TDM Signaling (ISDN): AT&T 4ESS/5ESS, Nortel
- DMS100, Euro ISDN (ETSI 300-102), QSIG, NTT InsNet
- (Japan), ANSI National ISDN-2 (NI-2)
- TDM Signaling (CAS): T1 CAS (E&M, Loop start); E1 CAS (R2)
- Back-to-Back User Agent (B2BUA)
- SIP (UDP/TCP/TLS) to/from SIP (UDP/TCP/TLS)
- SIP (UDP/TCP/TLS) to/from CAS/PRI/FXS
- CAS/PRI/FXS to/from CAS/PRI/FXS
- SIP Message Manipulation (SMM)

Protocol Support

- SNMPv2c
- NTP
- HTTPS
- RTP/RTCP, SRTP/SRTCP
- SIP over UDP, TCP, TLS
- DNS
- IPv4, IPv6, and IPv4/IPv6 interworking
- RIPv2, OSPF as dynamic IP routing protocols
- DHCP server
- DHCP client
- Asynchronous DNS for SIP

- NAT
- Support for Reason Header
- Microsoft Lync® E911 support; SIP/PIDF-LO passthrough and ELIN Gateway
- One number fax support (single DID for voice and fax)

Routing/Policy

- Active Directory/LDAP-based call routing
- Routing based on quality metrics
- Least cost routing
 - Event-based action set
- On-board call forking (up to eight end points)
- Supplementary services
 - Call hold
 - Call transfer (blind & assisted)
 - Call forward
- Embedded policy/routing engine
- Optional centralized policy/routing via Sonus Centralized Policy Server (PSX Server) using SIP
- Screening, blocking, routing, presentation, call type filters
- Route prioritization
- Leading digit routing; International routing; URI-based routing
- Digit manipulation (name/number manipulation using regular expression and Active Directory lookup)
- SIP routing
 - Based on source and destination IP address
 - Fully Qualified Domain Name (FQDN)
 - Detect proxy failure and route to alternate paths
 - Re-route on failure based on full Cause Code re-routing on T1/E1 trunks

Quality of Service (QoS)

- Bandwidth management
- Call Admission Control (CAC) (deny excessive calls based on static configuration for bandwidth management)
- P-time mediation for rate limiting
- Per-call statistics
- Diffserv/DSCP marking

Security

- TLS for signaling encryption
- Secure RTP (SRTP) for media encryption
- Built-in VoIP firewall
- Topology hiding; User privacy
- Prevention of Denial-of-Service (DoS) and Distributed DoS (DDoS) attacks

- Dialed Number Identification Service (DNIS), Calling Line Identification (CLID), Call type pre-authentication
- Traffic separation (VLAN interface separation)
- Malformed packet protection
- Access Control Lists (ACLs)
- IPsec VPN tunnel
- NAT/NAPT and port forwarding, NAT traversal

Packet Network Time Source

- Network Time Protocol (NTP) per RFC1708

Microsoft Skype for Business Support

- Qualified as a Survivable Branch Appliance (SBA) for Microsoft Lync 2010, Lync 2013, and Skype for Business deployments
- Qualified as an Enhanced Gateway for Lync 2013, Lync 2010 & Skype for Business deployments
- Lync 2013 and Lync 2010 qualified for SBC and E-911 ELIN Gateway
- Microsoft Office 365 Exchange Unified Messaging qualified
- Non-Lync SIP client user state reporting (e.g., presence, user busy, etc.) to Lync clients
- Microsoft SCOM support
- Lync Quality of Experience (QoE) monitoring collects call RTP stream data and sends to Lync QoE server
 - Round Trip Delay
 - Jitter (max, mean)
 - Packet Loss (max, mean)
 - Packet Loss Rate (max, mean)
 - Burst (density, gap density)
 - MOS-LQ, MOS-CQ
 - Signal/Noise Level
 - Microsoft Systems Center 2012 R2
- Skype for Business SDN API 2.2 support
- Integration with Nectar Unified Communications Management Platform (UCMP)

Server Module

Memory

- 32 GB of DDR4 with ECC (Error-Correcting Code)

CPU

- Intel® Xeon® Processor: Broadwell family, eight cores, 16 threads, 1.7 GHz

Storage

- 512 GB SSD

Capabilities

- Maximum number of concurrent calls deployed as Cloud Connector Appliance: 500

Additional Hardware Specifications

Front Panel

- Status Indicators Front Panel LEDs
 - Power
 - Alarm
 - Peer Node
 - Ready
- Dual USB 2.0 interface for main SBC board
- Additional dual USB 2.0 ports for ASM
- Administration Port
 - 1 x 10/100/1000 BASE-T Ethernet port

Chassis Mounting Options

- EIA-standard 19" equipment rack with 2 or 4 posts

Cooling System

- Internal forced convection

Environmental

- 5 to 40° C Operating
- -40 to 70° C Storage
- 5 to 85% non-condensing operating humidity

Sonus Cloud Link model type	SBC 1000	SBC 2000
Maximum number of concurrent Cloud Connector calls	500*	500
Maximum number of encrypted SBC sessions	192	600
Maximum number of SIP-to-SIP calls	192	600
Maximum number of TDM/FXx-to-SIP calls	144	480
Maximum number of call route entries	1,000	15,000
WAN and LAN interfaces	3 x 10/100/1000 BASE-T Ethernet ports with VLAN support	4 x 10/100/1000 BASE-T Ethernet ports with VLAN support
Physical PSTN interfaces	Up to 4 PRI, 12 BRI, 24 FXS, or 12 FXO ports	Up to 16 PRI and/or 48 FXS ports
Power supply	Single power supply	Redundant power supply
Chassis dimensions	1U, rack mount Inches: 17.5" wide x 1.75" high x 12" deep Centimeters: 44.4 wide x 4.4 high x 30.5 deep	1U, rack mount Inches: 17.5" wide x 1.75" high x 21" deep Centimeters: 44.4 wide x 4.4 high x 53.4 deep
Weight Maximum Fully Populated	12.5 lbs. (5.67 kg)	23 lbs. (10.43 kg)
AC Power Option	Input Voltage: 100-240 VAC nominal, auto-switching, 47-63 Hz AC Maximum Input Current: 1.25A at 115 VAC; 0.63A at 230 VAC AC Input Voltage Range (Nominal): 100-127 VAC and 200-240 VAC Max Power Consumption: 144 W	Input Voltage: 100-240 VAC nominal, auto-switching, 47-63 Hz AC Maximum Input Current: 3.0A at 115 VAC; 1.6A at 230 VAC AC Input Voltage Range (Nominal): 100-127 VAC and 200-240 VAC Max Power Consumption: 360 W

* Additional SBC/gateway required to route traffic loads over 192 sessions to/from onboard CCE

About Sonus Networks

Sonus enables and secures real-time communications so the world's leading service providers and enterprises can embrace the next generation of SIP and 4G/LTE solutions, including VoIP, video, instant messaging, and online collaboration. With customers in more than 50 countries and nearly two decades of experience, Sonus offers a complete portfolio of hardware-based and virtualized Session Border Controllers (SBCs), Diameter Signaling Controllers (DSCs), Cloud Exchange Networking Platform, policy/routing servers, and media and signaling gateways. For more information, visit www.sonus.net or call 1-855-GO-SONUS. Sonus is a registered trademark of Sonus Networks, Inc. All other company and product names may be trademarks of the respective companies with which they are associated.

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**To learn more, call Sonus at 855-GO-SONUS
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**Voice
Unified Communications
Business Productivity Solutions
Midmarket Solution Provider**

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