

Dialogic® BorderNet™ 4000 Session Border Controller

BorderNet™ Session Border Controllers supercharge connections between networks, services and subscribers with ease and scale

The Dialogic® BorderNet™ 4000 Session Border Controller (SBC) helps mobile and fixed next generation service providers deliver innovative IP-based services and connect and secure disparate network technology domains. The BorderNet 4000 SBC delivers unmatched performance, interworking, ease-of-use and advanced routing in a cost effective, compact platform. It can help service providers looking to lower operational costs and reduce the complexity of interworking different IP networks and deliver services in access, SIP trunking, peering, IP Packet Exchange (IPX), and wholesale applications.

The BorderNet 4000 SBC is part of the BorderNet™ family of session border controllers from Dialogic that help service providers and enterprises energize their networks and services with a better way to interconnect and deliver services through ease-of-use and low total cost of ownership (TCO).



Features

Feature rich scalability up to 32,000 simultaneous sessions at 600 sessions per second and up to 256,000 access subscribers

Peering and access features, including media transcoding

Powerful and easy-to-use SIP header manipulation tools and profile-based provisioning

Web 2.0 real-time dashboard and reporting

Benefits

More performance, more features in a smaller footprint can lower OPEX and CAPEX requirements

Increase ARPU through support for the delivery of business and residential services

Accelerate service deployment and automate and simplify complex tasks associated with provisioning and interconnection for a lower TCO

Improve operational efficiency through real-time visibility into service and system performance

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Examples of Applications

The BorderNet 4000 SBC provides security, multimedia connectivity, service assurance, and border management capabilities to help orchestrate and deliver video, voice and data services across diverse IP networks. The BorderNet 4000 SBC is well suited to help mobile, fixed and cable MSO service providers secure and interconnect their IP networks in the following applications:

- Delivering residential VoIP and business services, including SIP Trunking, hosted unified communications and contact center services
- Applications requiring media transcoding
- Interconnecting IP Multimedia Subsystem (IMS), Voice over LTE (VoLTE), and IPX networks
- Interconnecting diverse SIP and H.323 networks
- Multi-tenant SBC partitioning
- Detecting and reducing fraud
- IPv4 to IPv6 migration initiatives
- Managing multiple peering partners for traffic cost optimization and improved service quality

Feature Rich, High Performance SBC Solution

The BorderNet 4000 SBC is a “carrier grade” platform with “five-nines” availability and 4Gbps of throughput that can scale up to 32,000 simultaneous sessions at a rate of 600 sessions per second on a “carrier grade” 1 RU platform. It incorporates patent pending technology from Dialogic and combines high performance and advanced features as part of the overall solution, resulting in significant CAPEX savings opportunities. These features include media handling, load balancing on both inbound and outbound sessions with peering networks, emergency call handling, IMS and SIP-to-H.323 interworking functionality, advanced security features, and a configurable range of back-to-back user agent (B2BUA) levels.

Advanced Security Features

SBCs provide a first line of defense against fraud and malicious attacks in service provider networks. The BorderNet 4000 SBC helps protect network integrity and service quality from being compromised by providing a set of layered security capabilities that include the following:

- Customizable signaling and media topology hiding
- Built-in firewall capabilities
- Dynamic access control lists and automated rate limiting to protect against DoS attacks
- Real-time inspection of message syntax and semantics
- Protection against malformed messages
- Encryption including TLS, IPsec, SRTP and HTTPS
- Media related security including pin-hole management, Rogue RTP detection and bandwidth control
- Adaptive overload controls for assuring the delivery of high priority traffic

Real-time Dashboard, User Management and Reporting Capabilities

The BorderNet 4000 SBC's WebUI includes a real-time management dashboard that provides ready access to analytics such as traffic statistics, platform status, and a comprehensive set of platform and traffic reports to help manage the performance of system itself and its peering connections. The BorderNet 4000 SBC WebUI provides role-based user administration to secure and control access to various system views involving configuration and provisioning of the SBC. Configuration and provisioning tasks related to the BorderNet 4000 SBC are performed through the highly intuitive WebUI interface.

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In addition to OAM&P functions, the WebUI of Dialogic's BorderNet 4000 SBC also provides feature-rich analytics and reporting. Alarms are displayed along with security statistics that can provide insight on the performance of peering partners through inbound and outbound metrics like Answer-Seizure Ratio (ASR) for SIP and H.323 peers. The analytics available from the BorderNet 4000 SBC's WebUI include traffic statistics, usage summary, and a comprehensive set of performance and traffic reports to help manage network and service activity. Additional tools are included in the WebUI to make license management, data archive, historical reporting, regulatory compliance and network troubleshooting easy and streamlined.

Powerful and Easy-to-Use Management, Interworking and Configuration Tools for Low TCO

Service providers need to securely connect their networks with other operators to deliver services to their customers; however, not all SIP implementations are the same. Dialogic has developed the SIP Profiler for its BorderNet family of SBCs – including the BorderNet 4000 - to help reduce the complexity of this process. The SIP Profiler is a powerful configuration tool that can reduce the time and effort to implement interconnection in multi-vendor, multi-application environments across networks with different SIP behaviors.

The SIP Profiler can be used to define behavior at the ingress and egress ports of the BorderNet 4000 SBC and enable customized routing to help optimize and control SIP message flows. The SIP Profiler is accessed through the BorderNet 4000 SBC's WebUI, or through the use of XML scripts. Types of operations that can be performed using the SIP Profiler include:

- Add, modify or delete SIP headers, SIP bodies and SDP parameters and adaptively impact message sequence and flows
- Store information from header fields for later access
- Inspect SIP messages for specific content
- Use customized response codes when, for example, rejecting messages

A Media Profiler extends the core features of the powerful SIP Profiler framework to the SDP, media attributes, and the codecs used in the bearer plane. The Media Profiler provides the ability to:

- Control and reorder the offer codec list
- Control media attributes
- Manage ISUP, QSIG and other non-SDP message bodies

The BorderNet 4000 SBC WebUI simplifies operational tasks associated with configuring and maintaining the integrity of a peering environment. The profile-based provisioning capabilities through the BorderNet 4000 SBC WebUI allows users to define service, session, and media profiles that describe the behavior of a connected endpoint. With profile-based provisioning, a user can configure a new peering endpoint with a set of already-defined security, session, and media parameters with ease, thereby reducing not only the time to provision an interconnection, but also the system knowledge required. These powerful interworking and configuration features can help lessen TCO by reducing management complexity and accelerating service delivery.

The BorderNet 4000 SBC includes both IP level and session level tracing, media capture and recording. It also includes SOAP/XML and bulk loading of interface configurations along with a northbound API for integration with existing BSS/OSS applications. System software upgrading can be easily accomplished through the WebUI, with the ability to roll back upgrades if needed.

Increasing ARPU through the Delivery of Business and Residential Services

The BorderNet 4000 SBC supports features that help service providers looking to rapidly deliver revenue generating IP-based business and residential voice services including hosted PBX, hosted contact center applications and unified communications. The BorderNet 4000 SBC supports capabilities like SIP registration pass through, SIP trunking and PBX interworking, Far-end NAT traversal, and policy-based routing and resource control to help service providers reliably deliver VoIP services.

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The BorderNet 4000 SBC is compliant with SIP Connect 1.1 for SIP trunking applications. SIPconnect compliance helps service providers, value added resellers and enterprise organizations in reducing the time required for integration, testing and turn-up and also allows services to be rolled out quickly and efficiently. In addition, media transcoding configurations are also available to support any-to-any connectivity of voice- and video-based services. The BorderNet 4000 SBC has also been validated by BroadSoft for interoperability with its BroadWorks suite of VoIP application services that integrate video, fax, voice and email communications for businesses and consumer customers.

Technical Specifications

Protocol Interworking

Signaling:	SIP, SIP-I, SIP-T, H.323
Other:	VLAN, IPv4, IPv6, UDP, TCP, RTP, RTCP
Network:	IPv4, IPv6, Overlapped IP networks
3GPP:	Mx, Mx, Gm, Ic Interface

Security Features

- Access Control List
- Signaled pinhole media firewall
- Network topology hiding for both signaling and media
- Encryption support: TLS, IPsec, HTTPS, SSH, SRTP pass-through
- NAT traversal
- DoS and overload protection
- Rate Limiting
- Dynamic Black Listing

Media Security Features

- Media profiling
- Rogue RTP detection
- Packet rate monitoring, and limiting
- Dynamic bandwidth limiting
- Bandwidth determination and enforcement

IMS, IPX and VoLTE

- Proxy Call Session Control Function (P-CSCF)
- Inteconnect Border Control Function (I-BCF)
- Transition Gateway (TrGW)
- Integrated Border Function (I-SBC)
- Interworking Function (IWF)
- SIP and SIP-I/SIP-T Interworking

Session Admission Control

- License control
- Peer and Interface session rate limits
- Auto black listing

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Routing

Signaling:	Static Routing: Interface-Interface and Peer/Interface SIP Invite/3xx SIP redirect server routing Integration with other routing engines through SOAP and bulk routing Policy-Based routing SIP Message-based routing Local DNS for URI to IP Address and Port mapping Routing resolution through external DNS (SRV, A, NAPTR) Load-balancing and priority-based routing RFC 4904 Trunk Group Routing support Multi-tenant routing table support Emergency services call routing and call prioritization SIP URN routing Dynamic SIP REFER processing
Media:	Optional media termination Separation of signaling and media over VLANs Media NAT traversal Media tromboning

QoS

QoS metrics:	Packets lost, jitter inter-arrival, and latency
Policy enforcement:	DSCP marking, ToS marking
Traffic statistics:	Total packets and octets transferred

Media Interworking

Transcoding support for the following codecs:

Audio:	G.711, G.722, G.723.1, G.726, G.729a, G.729b, AMR-NB, AMR-WB, GSM-FR, GSM-EFR, iLBC
Video:	H.263, H.264, MPEG4
Fax:	G.711 fax, T.38
Tones:	G.711 tones, SIP INFO, RFC 2833

NOTE: Dialogic offers transcoding services on the BorderNet 4000 SBC either as integrated software-based Transcoding that is supported without the need for additional DSP resources or through a combination of the BorderNet 4000 SBC and the Dialogic® BorderNet™ 2020 SBC for large density requirements.

Scalability

Maximum Session Attempts Capacity:	600 sessions per second signaling and media
Maximum INVITE sessions:	32,000
Access:	Up to 256,000 subscribers at 1,600 registrations per second; 3,610 refreshes per second
VLANs:	1,024
IP Addresses:	2,048 (signaling and media)
SIP interfaces:	500
VLAN bridging:	Up to 1,024 802.1q VLANs
Transcoding:	
• Native software transcoding:	Up to 1,000 session
• Combination with the BorderNet 2020:	Up to 7,750 sessions

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Management

- Integrated web-based management (https) and real-time dashboard and analytics
- SNMP traps
- Historical and real-time statistics and reports
- Business and engineering reports including report filtering and multi-format data export
- Session Detail Records
- Role-based User Management
- Integrated Wireshark packet and session tracing
- Northbound API interface based on web technology (SOAP/XML)
- Bulk provisioning interface
- Dialogic® ControlSwitch™ System integration
 - Integrated configuration and provisioning
 - Integrated alarms and reporting
 - Unified Call Detail Record (CDR)
 - End-to-end session tracing
 - EMS platform manages both BorderNet 4000 SBC and ControlSwitch System

Interfaces

- Signaling and Media: 4 redundant (1+1) Gigabit Ethernet (10/100/1000 Base-T copper or MM optical)
- Management: 1 redundant Gigabit Ethernet (10/100/1000 Base-T)
- High Availability: 1 redundant Gigabit Ethernet (1000 Base-T)

Power

- Power Supplies: Dual hot swappable AC or DC power supplies
Each power supply 650W maximum
- AC Power Option: Auto ranging 100-240 VAC +/- 10% with power factor correction
Frequency: 50Hz – 60Hz
Current: 2A – 4.8A RMS
- DC Power Option: Voltage Input Range: -40 to -60 VDC
Nominal: -48 VDC
Current: 6A to 12A

Environment

- Operating Temperature Range: 41°F to 122°F (5°C to 50°C)
- Storage Temperature Range: -4°F to 149°F (-20°C to 65°C)
- Relative Humidity: Up to 90% humidity, non-condensing
- Heat Dissipation (max): 440W (1502 BTU/Hour)
- Power Dissipation: Typical: 400VA (330W)
Max: 470VA (400W) under full load

Physical

- Dimensions: *Width* 19 in (482.6 mm) x *Depth* 20.75 in (527.1 mm) x *Height* 1.74 in (44.2 mm)
- Weight: 26.8 lbs (12.2 kg)

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Environmental Standards

EMC/EMI

USA/Canada: FCC 47 CFR Part 15, Class A Digital Device ICES-003 Issue 4 - Feb 2004, Class A

European Union: EN 55022: 2006 + A1:2007, Class A Limit Immunity, EN 55024: 1998 +A1:2001, +A2:2003 and EN 300 386 V1.4.1 (2008)

Safety

USA/Canada: UL/CSA 60950-1 - 2nd Edition (2007)

European Union: EN 60950-1: 2006 + All: 2009

Approvals, Compliance, and Warranty

Hazardous substances

RoHS compliance information at www.dialogic.com/rohs

Country-specific approvals

Contact your local Dialogic sales representative

Warranty

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For More Information

For more information about the product discussed in this datasheet, contact your local Dialogic representative. Worldwide contact information is available online at www.dialogic.com/contact.

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For a list of Dialogic locations and offices, please visit: <https://www.dialogic.com/contact.aspx>

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