Dialogic® BorderNet™ Session Border Controller

"Single-Software" High Performance SBC for Simple Transition to Cloud

The Dialogic® single-software BorderNet™ Session Border Controller (SBC) is a scalable high-performance SBC that reduces CAPEX and OPEX while providing investment protection through simplified architecture, flexible deployment models, and automation-enabling points of integration. The BorderNet SBC enables mobile and fixed network service providers to interconnect and to deliver innovative IP-based services directly and through SIP trunks. The BorderNet SBC delivers unmatched performance, interworking, ease-of-use and advanced routing in a cost effective, compact platform for a low total cost of ownership (TCO). The portable BorderNet SBC software provides investment protection by enabling easy transition from a commercial off-the-shelf (COTS) deployment model to a virtualized private or public cloud deployment model.

COTS Deployment Model

Features	Benefits
Feature rich scalability up to 100,000[†] simultaneous sessions at 1,000 sessions per second	More performance and more features in a smaller footprint can lower OPEX and CAPEX requirements
Same software and features for all applications and deployment models: COTS, Virtualized, Cloud	Investment protection with Lower OPEX through consistent operational characteristics across all applications
Dynamic virtual CPU allocation	Reduce CAPEX through highly efficient compute resource utilization while maximizing performance
Powerful and easy-to-use SIP header manipulation tools and profile-based provisioning	Accelerate service deployment while simplifying complex tasks associated with provisioning and interconnection for a lower TCO
Distributed and de-coupled analytics infrastructure with real-time dashboard and reporting	Improve operational efficiency and detect fraud through interactive visualizations and business intelligence reporting

[†] *Session capacity depends on factors such as the mix of codecs used in deployment*

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Examples of Applications

The BorderNet SBC provides security, multimedia connectivity, service assurance, and border management capabilities to help orchestrate and deliver voice, video, and data services across diverse IP networks. The BorderNet SBC is designed to help mobile, fixed, cable MSO, and OTT service providers secure and interconnect their IP networks and deliver real time communication services to their end customers through the following applications:

- Interconnecting diverse mobile, fixed, and cloud-based networks

- Interworking between IP Multimedia Subsystem (IMS), Voice over LTE (VoLTE), IPX networks, NGN SIP and H.323 networks

- Enterprise SIP Trunks

- Residential and business VoIP services

- Hosted Unified Communications (UC) and contact center services

- Distributed SIP peering leveraging virtualized environments

- Detecting and reducing fraud

- Lawful Interception

- IPv4 to IPv6 migration initiatives

- Managing multiple peering partners

- Traffic cost optimization and service quality improvement

- Data center provider Infrastructure as a Service (IaaS) applications

Feature Rich, High Performance SBC Solution

The BorderNet SBC is a "carrier grade" SBC with "five-nines" availability that can scale up to 100,000[†] simultaneous sessions at a rate of 1,000 sessions per second on a "carrier grade" 1 RU platform. The BorderNet SBC extends its carrier-grade attributes across all deployment models, including Enterprise Edge and Amazon public cloud. It incorporates patented and/or patent pending technology from Dialogic and combines high performance and advanced features as part of the overall solution, resulting in significant CAPEX and OPEX savings opportunities. These features include software-based media encryption and transcoding, load balancing on both inbound and outbound sessions with peering networks, emergency call handling, lawful intercept, Interworking function between SIP, SIP-based PBX systems, SIP-IMS, SIP-I (SS7) and H323, advanced security features, interactive real-time voice quality monitoring (VQM) with threshold-based business intelligence reporting and a configurable range of back-to-back user agent (B2BUA) levels.

[†] Session capacity depends on factors such as the mix of codecs used in deployment

Advanced Security Features

SBCs provide a first line of defense against fraud and malicious attacks in service provider networks. The BorderNet 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

- 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

- Message flood protection

- Dynamic Black Listing

- Media-related security, including pin-hole management, Rogue RTP detection and bandwidth control

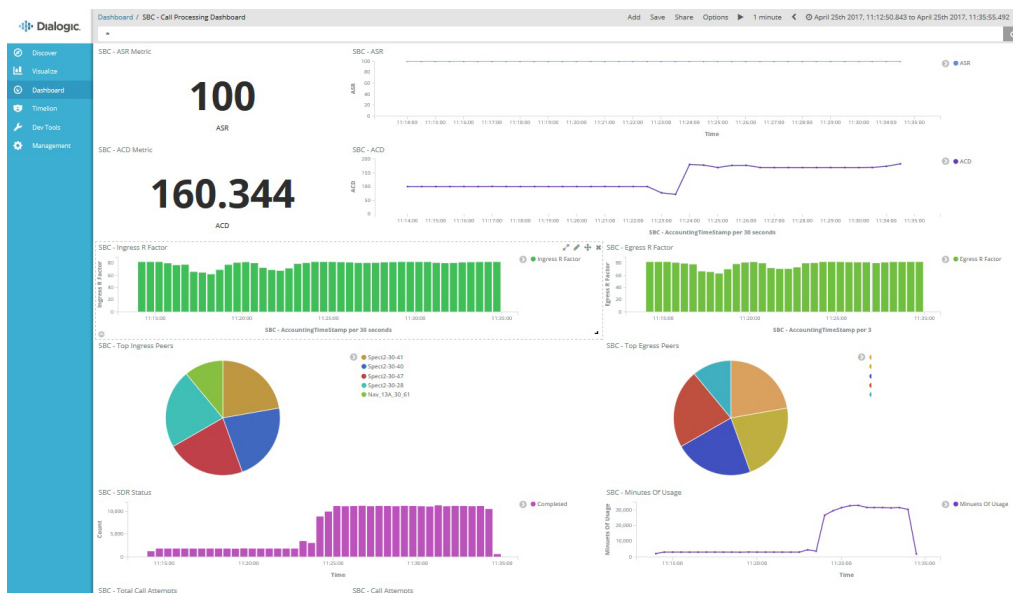- Adaptive overload controls for assuring the delivery of high priority traffic

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Real-time Dashboard, User Management and Reporting Capabilities

The BorderNet SBC provides both an integrated and a distributed de-coupled analytics infrastructure with WebUIs that include a real-time management dashboard with ready access to analytics such as traffic statistics, platform status, as well as a comprehensive set of platform and traffic reports to help manage the performance of the system itself and its connected peers and users. The BorderNet SBC integrated 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 SBC are performed through the highly intuitive WebUI interface.

In addition to OAM&P functions, the BorderNet SBC WebUI also provides feature-rich analytics, including voice quality monitoring and reporting. Alarms are displayed along with security statistics that can provide insight on the performance of peering partners as well as individual end users through inbound and outbound metrics like Answer-Seizure Ratio (ASR), Average Call Duration (ACD) and voice quality measurement (VQM) for both SIP and H.323 peers and end users. The integrated BorderNet SBC WebUI analytics 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 are challenged to easily and securely connect and deliver services to other operators, Enterprises, and end users despite the wide and varying range of SIP implementations. The Dialogic BorderNet SBC SIP Profiler reduces the complexity of SIP interworking and speeds time to revenue for new customers and services.

The SIP Profiler can be used to define and customize BorderNet SBC behavior at the ingress and egress ports and enable customized routing to help optimize and control SIP message flows. The SIP Profiler is accessed through the integrated BorderNet SBC 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

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An integrated 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 and manipulate contents of ISUP, QSIG and other non-SDP message bodies

The BorderNet SBC integrated WebUI simplifies operational tasks associated with configuring and maintaining the integrity of both access and peering environments. The profile-based provisioning capabilities through the BorderNet SBC WebUI allow users to define service, session, and media profiles that describe the behavior of a connected endpoint. With profile-based provisioning, a user can rapidly configure a new peering endpoint with a set of pre-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 lower TCO by reducing management complexity and accelerating service delivery.

The BorderNet 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. RESTful API support automates BorderNet SBC instantiation and provisioning, significantly reducing operational costs and improving time to service delivery.

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

Security Features

Access Control List

Signaled pinhole media firewall

Network topology hiding for both signaling and media

Encryption support: TLS, IPsec, HTTPS, SSH, SRTP

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

Integrated Border Function (I-SBC)

Interworking Function (IWF)

– SIP and SIP-I/SIP-T Interworking

– H323 and SIP

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Session Admission Control

License control

Peer and Interface session rate limits

Auto black listing

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	Voice Quality Measurement (VQM), Packet loss, jitter inter-arrival, and latency
Policy enforcement	DSCP marking, ToS marking
Traffic statistics	Total packets and octets transferred

Media Support

Software Transcoding support for the following codecs	Audio: G.711-PCMA, G.711-PCMU, G729A, G729AB, G723.1, G.722, G/726, AMR-NB, AMR-WB, OPUS, iLBC, and EVS narrow-band
Hardware Transcoding support for the following codecs	Audio: G.711-PCMA, G.711-PCMU, G729A, G729AB, G723.1, G.722†, G/726†, AMR-NB, AMR-WB, OPUS, iLBC, and EVS narrow-band†
Fax	G.711 fax, T.38
Tones	In Band, SIP INFO, and RFC2833 DTMF

† *future release*

Performance and Capacity

Maximum Concurrent Sessions	100,000 (G.729) / 75,000 (G.711) including media
Maximum Concurrent (TLS/SRTP)	20,000
Maximum Sessions/Sec (SPS)	1,000 sessions per second signaling and media
SIP messages per sec. (7 per session)	7,000
Media packets per second (pps)	6,000,000
Access (subscribers)	256,000

Scalability

VLANS	1,024
IP Addresses	2,048 (signaling and media)
SIP interfaces:	500
Peers:	4,000
Profiles:	1,024
Local DNS entries	65,000
Policies	5,000

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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)

RESTful API

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

– Integrated EMS platform

Interfaces

Signaling and Media	4+4 x 1 Gb Ethernet (10/100/1000 Base-T or MM fiber each), or 2+2 Fiber 10Gb
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 800W maximum	

AC Power Option

Input Voltage Range (V rms)	100 to 240 VAC
Frequency Range (Nominal) (Hz)	50 Hz to 60 Hz
Nominal Input Current (A rms)	9.1 A at 100 VAC, 4.4 A at 200 VAC, 3.7A at 240 VDC

DC Power Option

Input Voltage Range (VDC)	-40 to -72
Nominal Input Voltage (VDC)	-40 VDC, -48 VDC, -72 VDC
Nominal Input Current (A -DC)	22.0 at -40 VDC, 18.1 at -48 VDC, 11.9 at -72 VDC

Environment

Temperature range

Operating	10°C to 35°C (50°F to 95°F)
Non-operating	-30°C to 60°C (-22°F to 140°F)

Relative humidity (noncondensing)

Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be 24°C (75.2°F) dew point or 90% relative humidity.
Non-operating	5% to 95% 38.7°C (101.7°F), maximum wet bulb temperature

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Physical

Dimensions

Width	43.47 cm (17.11 inch)
Depth	69.85 cm (27.50 inch)
Height	4.32 cm (1.7 inch)
Weight	12.25 Kg (27.00 lb.) - includes one hard drive, power supply, and processor.

Approvals, Compliance and Warranty

Environmental Information	http://www.dialogic.com/en/company/environmental-policy.aspx
Country-specific safety and telecom approvals	http://www.dialogic.com/declarations
Warranty Information	Contact your local Dialogic sales representative

For More Information

For more information about the product discussed in this datasheet, contact your local Dialogic representative.

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