

Dialogic® Helix™ Signaling Controller

The Dialogic® Helix™ Signaling Controller is a high performance, highly scalable and versatile next generation Diameter Signaling Controller, enabling seamless management and delivery of services across 3G, 4G mobile and fixed networks.

The Helix Signaling Controller (HSC) seamlessly combines multiprotocol Interworking Functionality (IWF), Diameter Edge Agent (DEA) and Diameter Routing Agent (DRA) features in an integrated, easy-to-use platform for rapid service innovation and orchestration. HSC can reduce the time to bring new services to market via the innovative web GUI; this gives exceptional flexibility for the rapid creation and validation of services across multi-vendor environments, independent of network technologies or protocols (3G, 4G/LTE, IMS/VoLTE, Fixed and Wi-Fi networks).



Features	Benefits
Integrated and seamless IWF, DEA, and DRA functionality for multi-protocol, multi-domain signaling interworking and orchestration	<ul style="list-style-type: none"> • Enable 4G, 3G, VoLTE, and Wi-Fi roaming and interworking • Secure, cost effective interconnection to roaming partners and IPX operators • Establish centralized management, security and load balancing of signaling messages • Enable highly granular and intelligent routing of Diameter and non-Diameter applications based on protocol, message parameter, or message context
Unmatched Web 2.0 GUI-based signaling interworking and service design	<ul style="list-style-type: none"> • No proprietary or complex scripting required • Enable rapid development of new services and accelerate time to market through easy manipulation/modification and application of advanced logic to signaling message flows
Interworks multiple signaling and IT-related protocols, and supports any Diameter interface (including proprietary extensions and variants)	<ul style="list-style-type: none"> • Avoid infrastructure vendor lock-in • Removes the need for expensive and time consuming development projects to support new protocol variants or complex interworking use cases.
Advanced dashboard and extensive reporting capabilities	<ul style="list-style-type: none"> • Enables detailed auditing and recording of protocol events, configuration, logging and tracing
Integrated signaling message routing	<ul style="list-style-type: none"> • Consolidate SS7/SIGTRAN gateways and Diameter routing on same platform

Powerful Web 2.0 GUI-based Portal

HSC gives users unparalleled access to a rich set of functions through an intuitive web 2.0 Graphical User Interface (GUI). These functions can be combined and applied to both Diameter and non-Diameter applications and are extensible to other protocols and protocol variants which can be user modified via the template-driven configuration capabilities. Users are a few clicks away from enabling complex mediation, interworking and routing scenarios on any Diameter interface, all without the need for complex and cumbersome proprietary scripting languages.

Advanced Multiprotocol Interworking Functionality

HSC's flexible IWF capabilities support key use cases such as:

- Diameter-to-MAP interworking to support 3G – 4G roaming as per specification 3GPP TS 29.305;
- Diameter-to-RADIUS interworking to facilitate seamless Wi-Fi offload for mobile subscribers;
- Diameter-to-IT protocol (e.g. LDAP, HTTP or SOAP/XML) interworking to support tasks such as subscriber database queries during dynamic service flows.

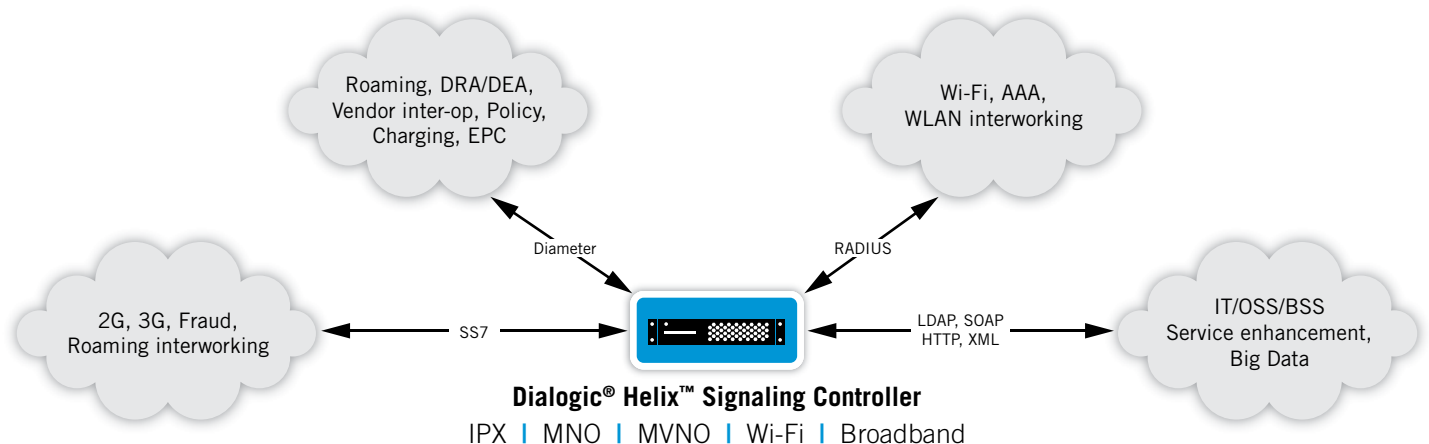


Figure 1. Dialogic® Helix™ Signaling Controller: Single platform for interworking, routing, security and service enhancement

Rapid, GUI-based Interoperability between Core and Edge Infrastructure Elements

HSC can help resolve vendor interoperability issues between Evolved Packet Core (EPC) elements preventing you from turning up new networks or rolling out innovative revenue opportunities. The intuitive GUI frees your operations personnel from having to go back to your infrastructure vendor for costly and time consuming development work. Features include:

- Support for any Diameter interface and adaptability to proprietary AVPs
- Real-time mediation and manipulation of fields within signaling messages
- Wide range of operations on signaling messages, including:
 - Copy, move, add, multiply, modify, and retrieve/store/insert data

3G, 4G Wi-Fi Mobile Data and VoLTE Roaming Enablement

Wi-Fi operators and MNOs can expand coverage and improve costs through Wi-Fi roaming. MNOs and IPX operators need Diameter and SS7 signaling solutions to take advantage of 3G-to-4G, 4G-to-4G and VoLTE roaming opportunities. The HSC enables operators to interwork networks and eliminate the need for standalone signaling gateways by providing interworking, security, caching, and EAP-based authentication support, all on the same solution:

- Automated real-time signaling modification based on White/Grey/Black lists queries
- Diameter-to-MAP/SS7 interworking
- 3G-to-4G authentication vector interworking
- GSMA IR.88 DEA support
- RADIUS (RFC 2865 and RFC 2866) mediation and RADIUS-to-Diameter interworking
- EAP-based authentication server functionality

Signaling Enhancement

The advanced orchestration capabilities of HSC expose and make available the rich set of intelligence within the signaling messages for real-time analysis and manipulation. Users can establish rules that can apply conditional logic to signaling flows and use the result to interact programmatically with other data sources, charging systems, or OSS/BSS platforms.

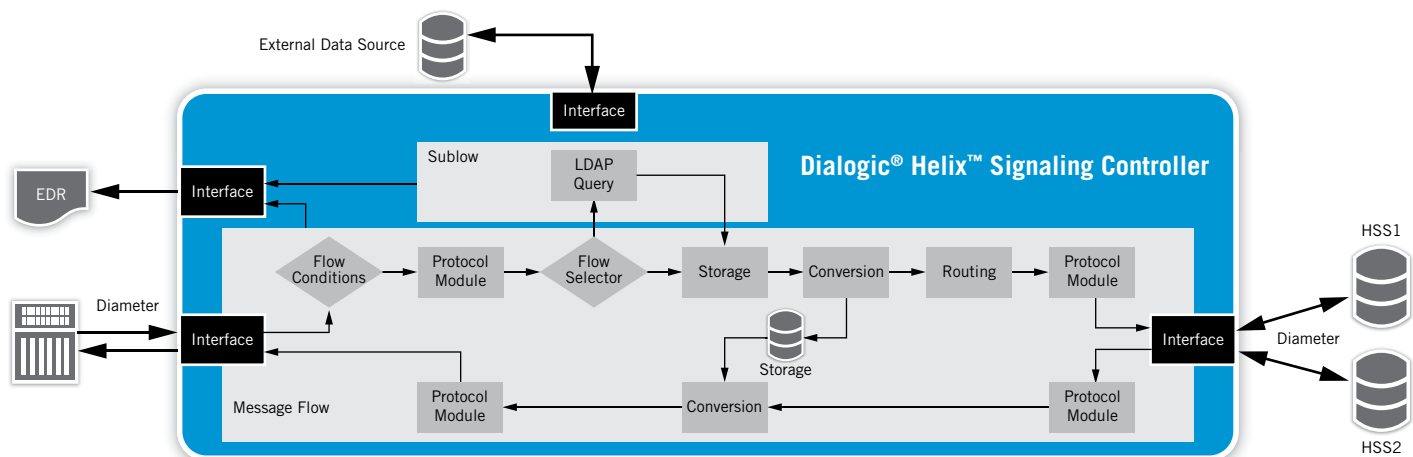


Figure 2. Rules-based, automated interaction of function and interface modules on Diameter flows to route, modify and enhance services.

Integrated Message Router Capabilities Including Gateway STP

The HSC uniquely supports message router capabilities to provide an expanded set of signaling controller features, including Gateway Signal Transfer Point (STP) functionality, in addition to serving as a DSC. Applications for the integrated HSC message router include the following:

Message Router Application	Description
Gateway STP	<ul style="list-style-type: none"> Route and connect signaling messages to external STP mated pairs MTP3 header-based routing: e.g. NI, SI, OPC, DPC, CIC Range
SMS/SCCP Router	<ul style="list-style-type: none"> Signaling Point Relay (SPR) node to pass SCCP messages between networks Route messages based on DPC, SSN or Global Title Supports Load Balancing, Global Title Translation, network topology hiding, optional Number Portability Can be used as an interconnect gateway between multiple networks
SIGTRAN Gateway (Dialogic hardware appliance-based distribution only)	<ul style="list-style-type: none"> High density SS7-to-SIGTRAN gateway for interworking between equipment or networks E1/T1 TDM connectivity using LSL, HSL, ATM (up to 248 LSL) SIGTRAN connectivity using: M2PA, M3UA ASP, M3UA ASP, or M3UA IPSP

Technical Specifications

Networking	IPv4, IPv6	
Transport Protocol	TCP, UDP, SCTP, SIGTRAN, TLS/TCP	
Diameter base conformance	RFC6733, RFC 3588	
IETF Diameter agent support	Relay, Proxy, Translation	
3GPP Diameter agent support	DRA, IWF	
GSMA Diameter agent support	DEA	
Protocol Support	Diameter, RADIUS, SS7, HTTP, SOAP, REST, XML, LDAP	
Diameter Reference Interfaces	Template-based support enables user implementation of Diameter interfaces including proprietary AVPs	
Preconfigured templates	Diameter: Cx, Dx, Gx, Gy, Gz, Ro, Rx, S13/S13', S6a/S6d, S9, Sh, Sy, Wx SS7: Gr, Gf	
Management	CLI, GUI, SNMP, XML, CSV, Dashboard	
On-board Functions	Interworking, any-to-any protocol conversion, mediation, aggregation, intelligent routing, enrichment, shaping, configurable service logic	
Form factor	1U Rack Mount Server	
SS7 T1/E1 interface boards	Up to two (2) boards per unit; either one or two Dialogic® DSI SS7LDH4 Network Interface Boards or one or two Dialogic® DSI SS7MDL4 Network Interface Boards can be used	
	SS7LD	SS7MD
T1/E1 ports per board	4 T1 or 4 E1	4 individually selectable T1/E1
SS7 Low Speed Links per board	Up to 16	Up to 124
SS7 High Speed Links (Q.703 Annex A) per board.	N/A	Up to 4
ATM High Speed Links per board.	N/A	Up to 4
Maximum SS7 links per unit	248	
Maximum SS7 link sets per unit	120	
Maximum M2PA links per unit	256	
Maximum number of SS7 routes	4,096	
Number of separate network contexts	4	
Maximum number of SIGTRAN associations	256	
10/100/1000Mbit/sec Ethernet interfaces	8	

Power	Dual Redundant AC or DC
MTBF (Using Telcordia method at 40°C)	86,000 hours with AC version with 8 Ethernet ports, and 87,000 hours with DC version with 8 Ethernet ports (assumes dual PSU configuration)

T1/E1 Interfaces

Pulse mask	T1: ANSI T1.403 E1: ITU-T G.703
Data rate	T1: 1544 kbps ± 50 ppm E1: 2048 kbps ± 50 ppm
Frame format	T1: D4, ESF, and ESF-CRC6 E1: E1 and E1-CRC4
Line codes	HDB3, AMI, B8ZS
Connector type	RJ-48C

Power

DC-powered products per power supply	Supply voltage (range nominal) –40 VDC to –60 VDC Input power (fully equipped) 200 W
AC-powered products per power supply	Input voltage 100 VAC to 240 VAC Input power (fully equipped) 200 W Frequency range 50 Hz - 60 Hz

Physical Dimensions

Height	1.74 in. (4.4 cm)
Width	16.93 in. (43.0 cm)
Depth	20.4 in. (51.9 cm)
Weight – fully equipped	26.8 lbs (12.16 kg)

Environmental

Operating temperature	+50°F (+10°C) to +104°F (+40°C)
Storage temperature	–40°F (–40°C) to +158°F (+70°C)
Hazardous substances	RoHS compliance information at http://www.dialogic.com/rohs
Country-specific approval information	Refer to global product approvals database at http://www.dialogic.com/declarations

Warranty	Warranty information at http://www.dialogic.com/warranties
Service plans	See Dialogic® Pro™ Services information at http://www.dialogic.com/products/services

For More Information

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

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The logo for Network Fuel, featuring the words "NETWORK FUEL" in a bold, sans-serif font. The word "NETWORK" is in white on a black background, and "FUEL" is in black on a white background. A registered trademark symbol (®) is located to the right of the word "FUEL". The logo is set against a background of a complex network diagram with nodes and connecting lines.

NETWORK FUEL®