C4-in-a-Box

Integrated Class 4 Softswitch for small to medium NGNs

- Full C4 Softswitch capabilities

- Entry level solution starting from 60 concurrent calls

- Supports up to 180.000 BHCC

- Supports up to 960 concurrent calls

- Advanced and programmable call routing engine

- Any-to-any protocol interworking

- IP-to-IP peering

- Controls media gateways with H.248

- Up to 8 Media Gateways in a distributed architecture

Product overview

An entry level solution for small NGN based networks. This product gives you the freedom to scale in future to medium or large NGN based networks. The C4-in-a-Box contains a Softswitch, Media Gateway, and Signaling Gateway in a single rack unit, saving space and costs. Although the C4-in-a-Box is a small-scale solution, it also supports all C4 Softswitch features and comes with a full featured Element Management System (EMS).

Mulitprotocol Support and Advanced Routing

The C4-in-a-Box combines two capabilities and thereby maximizes both the number of supported network scenarios and the call completion rate. Firstly, the C4-in-a-Box supports all major VoIP and TDM protocols and includes any-to-any protocol interworking. Secondly, the C4-in-a-Box can analyze and determine routing based upon policies and sophisticated algorithms. To carry out the second capability, it uses the intelligent, easy-to-configure Call Routing Engine.

Proven Interoperability

The TELES C4 Softswitch proven interoperability with all major VoIP and TDM carriers and vendors plays a major role in a variety of NGN scenarios for seamless operation in multi-vendor and multi-carrier environments.

Comprehensive System Management Capabilities

TELES C4-in-a-Box can be managed, configured, and deployed remotely with the included Element Management Systemincluded. With full Fault-, Configuration-, Accounting-, Performance-, and Security-Management (FCAPS) compliance, the EMS offers enhanced operation capabilities while reducing time and effort typically required to manage your Next Generation Network.
However, for service providers who already invested in large umbrella management systems, the Media Gateway Controller offers open interfaces for provisioning, alarming, and billing.

Installation

The C4-in-a-Box is provided with an installation wizard that performs the initial configuration of the C4 Softswitch, Media Gateway, and Signaling Gateway.

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C4-in-a-Box

CAPABILITIES

Scalability	Max simultaneous calls 960
Performance	Max 180.000 BHCC
Redundancy	Optional 1+1 hot standby for C4 Softswitch
	Optional 1+1 hot standby for Signaling Gateway
Supported MGW VoIP codecs	G.711 (A-law, μ-law), G.723.1 (5.3k, 6.3k), G.726 (16k, 24k, 32k, 40k), G.729, G.729A, G.729B, G.729AB, T.38, GSM, Clear Channel Silence Suppression and/or Echo Cancellation on a per call basis
Advanced	RADIUS Support (RFC2865, RFC2866, RFC2869, CISCO Vendor Specific Attributes (VSAs), TELES VSAs)
	Fax and modem detection and transport (bypass, transparent, or relay)
	SIP – ISUP (SIP-I/T) interworking (ITU-T Q.1912.5-Profile C, RFC3372, RFC3398, RFC3204)
	IN Number Portability based on ITU-T INAP (CS-1)
	Telephone Number mapping (ENUM)
Routing policies	Policy-based call routing (destination/originating party, peering partner, bearer service)
	Advanced, intelligent call routing (complex routing rules, multilevel routing function, Least Cost Routing, fully programmable routing flow by using regular expressions)
	Establish your own routing services by using a RADIUS interface
Enhanced billing options	Extensive online or offline Call Detail Records
	RADIUS accounting
	CDR mediation device for existing billing system adaptation

PROTOCOLS

Control protocols	H.248 (Megaco)
	I-BCF functionality
VoIP	SIP, SIP-I /T, H.323v4
PSTN SS7	MTP2 (ITU-T Q.703)
	MTP3 (ITU-T Q.704)
	ISUP (ITU-T Q.761–Q.764 (V1 Blue Book, V2 White Book, V3)), Q.767 international inter-connection
	ETSI (ETS 300 356-1: 92, 95, 98)
	ISUP more than 35 national variants
	ANSI (Telecordia Technologies Specification (Chapters: T111.3, T111.4, T113.3))
PSTN ISDN	EDSS1 User Side: ITU-T (Q.921, Q.931), ETSI (TBR4, ETS 300 125, ETS 300 102, ETS 300 315)
	EDSS1 Network Side: ITU-T (Q.921, Q.931), ETSI (ETS 300 102, ETS 300 317)
	QSIG (basic call), ETSI (ETS 300 172)
	5ESS (basic call), Telecordia /Bellcore (TR41459)
SIGTRAN	SCTP (RFC2719, RFC2960, RFC3309)
	M2UA (RFC3331)
	M3UA (RFC4666)
	IUA (RFC4233)

SYSTEM MANAGEMENT

- OAM by Java based GUI
- CLI (command line interface, SSH)
- SNMPv2(RFC 3418)
- standard MIB's
- private MIB's

HARDWARE SPECIFICATION

Physical Parameters	
Enclosure	1U high, 19-inch wide rack mount
Weight	Approx. 6.4 kg
Power	Dual-redundant 90-260 V AC
Network interface	Dual Redundant 10/100 BASE-T Ethernet ports via 2 RJ-45 connectors on RTM
Telephony Interface	16 E1/T1/J1 using dual 50-pin Telco connectors on RTM or up to 8 E1/T1/J1 spans using RJ-48c connectors

Environment Conditions	
NEBS Level 3	GR - 63-Core (DC-powered model), GR -1089-Core Type 1 & 3, ETS300 019

Regulatory Compliance	
Telecommunication Standards	FCC part 68 TBR4 and TBR13
Safety and EMC Standards	UL60950, FCC part 15 Class A, CE Mark (EN55022 Class A, EN60950, EN55024, EN300 386)

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