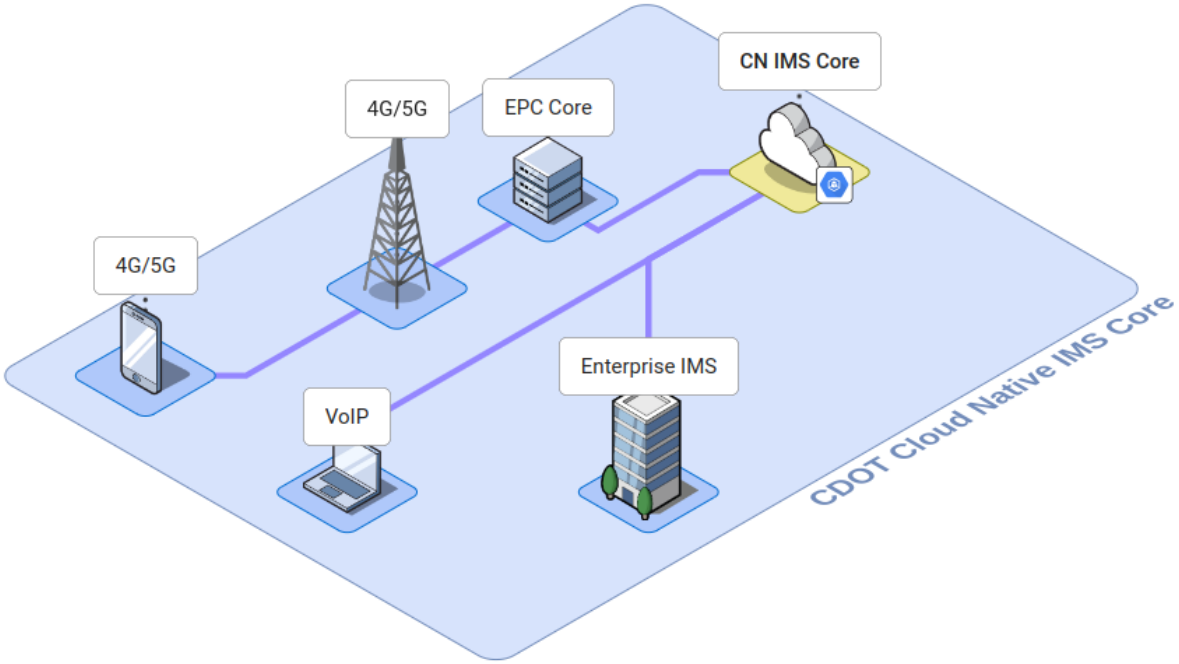
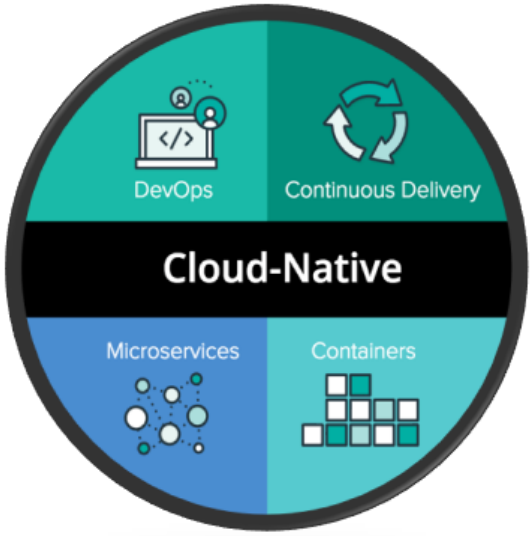
C-DOT Cloud Native IMS (CDOT CN-IMS)



CDOT Cloud Native IP Multimedia Subsystem (CN-IMS) core solution, is an innovative cloud native approach to develop, deliver and deploy communications networks, a state-of-the-art enterprise solution.

Product Overview

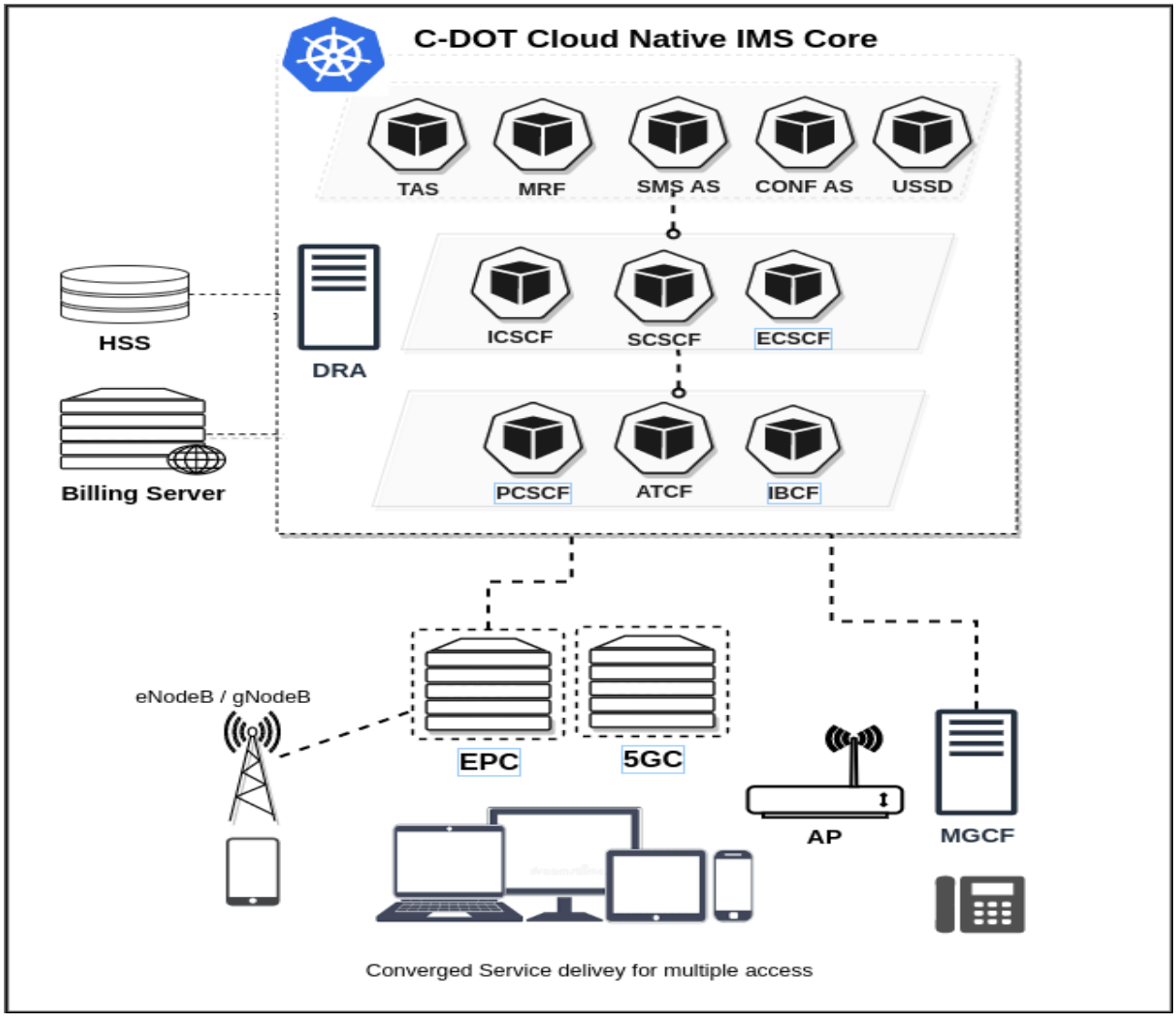


CDOT CN-IMS solution is a complete package for delivery of converged voice, video and text services. CDOT IMS is QoS enabled, integrated, modular and expandable software product which provides a secure, highly scalable, carrier grade solution and ensures quality of voice and flexibility of services. It is a multi protocol solution with intelligent routing, call control functionality and configurability targeted for converged market applications. CDOT CN-IMS core solution includes control layer function P/I/S-CSCF IBCF, application functions for voice, messaging, multimedia, conference and USSD application servers employing standardised SIP signalling interface and Diameter based charging interfaces.

This fully cloud native solution is deployable as virtual network functions (VNF) on OpenStack or as container network functions (CNF) on Kubernetes, within diverse environments, in both private and hybrid clouds without sacrificing features, performance and security. CN-IMS components can scale out horizontally wherein load balancing is performed through powerful linux kernel capabilities. It supports voice, video and messaging over both 4G(VoLTE) and 5G (VoNR).

Cloud-Native IMS Solution Highlights

CDOT CN-IMS is based on 3GPP IMS architecture. Cloud native architecture makes it highly flexible, scalable, cost effective, easy to deploy and monitor. CN-IMS is able to expose single points of configuration, monitoring and diagnosis. Single point configuration and management of CN-IMS nodes allows a hassle free deployment of solutions from operator's perspective, where operators need to deploy and manage clusters as whole.



Functional Components

P-CSCF	It functions as a proxy / A-SBC by maintaining security leadership in the cloud with a Zero Trust model, IPSec encryption along with DOS/DDOS handling.
I-CSCF	Interrogating-CSCF interrogates the HSS over Cx interface to obtain S-CSCF IP or capabilities. It is a key element in the IMS roaming methodology.
S-CSCF	Serving-CSCF is responsible for session control for facilitating IFC based routing. It supports Cx and Rf interface and Shared-IFC functionality
E-CSCF	Routes emergency sessions to PSAP using services of LRF(Location Retrieval Function)
IBCF	IBCF offers boundary control between various service provider networks, providing Topology-Hiding functionality.
MMTel/TAS	Provides rich supplementary services, e.g., call transfer, communication diversion and call barring
IP-SM-GW	Provides SMS services for VoLTE and legacy devices and allows interworking towards other networks based on SMPP
MRF	Provides network announcements, media services such as IVRS and Voicemail and is set up as a combined MRFC and MRFP.
USSD AS	Provides USSD operations for mobile initiated MMI mode over IMS
Presence AS	Provides presence services / BLF services to SIP Phone
CONF-AS	Provides 3-way conferencing for LTE subscribers.

Feature List

Use Cases

- Mobile/VoLTE Access and Interconnect
- Fixed Access and Interconnect
- SIP Trunking

IMS Specifications Support

- P-CSCF, I-CSCF, S-CSCF, TAS, IBCF, MRF - 3GPP IMS Rel 15
- GSMA IR-88 and IR-92
- Diameter base protocol RFC 6733
- DRA - 3GPP DRA Rel 15
- USSD - 3GPP 24.390

Network Integration

- Secure load balancer available with strategies rr, lc, dh, sh, nq
- Deployment-wide admissions control
- Lawful Interception

Security

- Dynamic blacklisting
- SIP privacy support
- Static access control lists
- IPSec Transport mode support
- Topology Hiding

Management and Operations

- Configuration via GUI, CLI, REST API
- Ready for fully automated deployment
- Automatic scaling of signalling and media resources available
- CI/CD gitops management option

Media Interworking Features

- Support media with DSP
- In-band DTMF, DTMF in signalling and RFC2833 inter-working
- NAT detection and traversal
- Video codec passthrough
- Fax/T.38 interworking
- RTCP generation

Deployment Models

- VoLTE
- Enterprise IMS solution
- OTT voice/video
- MAX-NG replacement
- Same field hardened software available in:

- Zero Trust Model
- DOS / DDOS Attack Handling

SIP Interworking Features

- Powerful Message Manipulation Framework to manipulate and repair:
  - SIP headers
  - SIP bodies
  - Diameter messages
- SIP/SIP-I interworking
- Number Portability
- eSRVCC and EATF function
- Registration monitoring
- IPv4 to IPv6 interoperability
- NAT detection

Codecs Supported

AMR, AMR-WB, PCMA, PCMU, Speex, VP8, VP9, Opus

  - Private clouds (Openstack, VMWare)
  - Common of the Shelf Hardware
  - Containers

Supported OS

- Ubuntu 18.04
- CentOS 7.8
- RHEL 7.8
- Compatible with Alpine
- Distributed as OVA/QCOW2 install images

Monitoring

- SNMP V2/V3
- Monitoring integration providing configurable dashboards for metrics, logs and alarms
- External monitoring feeds for analytics and probe substitution

Load Dimensioning

Subscribers	<10K	10K- 50K	50K- 100K	100K- 200K
CPU:	4 VCPU	6 VCPU	8VCPU	12VCPU
RAM:	4 GB	6 GB	12 GB	24GB

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