MiniCore

YateHSS/HLR & YateUCN in a box for testing & research

MiniCore is a Software-defined compact core network for LTE/IMS and GSM/GPRS.

It combines our YateHSS/HLR, YateUCN and YateSMSC in a small package.

It can be used a second core network for testing. In a laboratory it can be paired with the LTE LabKit for a full LTE/GSM network.

Components

The MiniCore is a small factor PC computer that has preinstalled the following software components:

✔ YateUCN (MSC/VLR, GMSC, gsmSCF, MME/SGW/SGSN, PGW/GGSN, IMS CSCF)

✔ YateHLR/HSS (AuC, HLR, HSS, Subscriber management)

✔ YateSMSC (SMS store-and-forward, routing, home routed SMS)

✔ YateSTP (routing of SS7 messages by Point Code or Global Title)

✔ YateDRA (routing of Diameter messages by host, realm, application)

✔ YateMMI (Web management interface)

On demand additional components can be installed on the same hardware.

Features

✔ Setup/edit mobile network and component preferences via **MMI management interface**

✔ **Minimal monitoring of each network component**, additional YateBTS monitoring possible

✔ **Wireshark capture** of communication between components including decrypted IMS traffic

✔ **JSON API integration** with any SIM management and CRM systems

✔ **JSON and REST API** for sending SMS

✔ Can use both **SIGTRAN/SS7 and Diameter** for signaling

✔ **Supports both IPv4 and IPv6**

✔ **Works both stand alone and with external components**

Communication protocols

MAP/SS7/SIGTRAN	- M2PA or M3UA-ASP over SIGTRAN, SCTP (CRC32) - ITU TCAP, ETSI MAP v3 - ITU or ANSI SCCP and SS7 MTP - E.164, E.212 (ANSI), E.214 (ITU), TT or PC SCCP addressing - Can connect to multiple STP/GW - CAMEL phase 2
Diameter	- 3GPP Applications S6a/S6d, Cx/Dx - SCTP or TCP transport - Can establish or listen for connections - Can connect to multiple Routing Agents
HTTP	- JSON API server for configuration and subscriber management - JSON API for monitoring and information retrieval - REST API client for visited network change notification - JSON and REST API for sending SMS
SNMP	- SNMP v2 or v3 for information retrieval - Traps sending for alarms
Telnet	- Management CLI for each component - Optional SSL and password protection
Voice interconnect	- SIP and RTP - G711, GSM and AMR codecs
SIP	- Supported standards (RFC3261) - Registrar function - B2BUA for calls - RTP (RFC3550) with sideband DTMF (RFC2833) - SMS and USSD over IP
SMPP	- Standard version 3.3 - Supports bidirectional communication
RADIUS	- Authorization of voice calls, data sessions and short messages - Postpaid accounting for voice, data and SMS - Prepaid support by re-authorization - Support for 3GPP, Cisco VoIP VSA and Cisco ISG VSA dictionaries
SMS	- Format: SMS PDU (MO and MT) - MAP/SS7 transport (T-PDU format) - SIP MESSAGE transport (SMS over IP, R-PDU format)
CDR	- Flexible file format (default .tsv files) with customizable table headers - Automatic file rotation - Optional file transfer: FTP, SFTP - JSON HTTP push API - RADIUS with 3GPP and Cisco dictionaries

Communication interfaces

✔ **C interface** (MAP, HLR <-> GMSC)

✔ **D interface** (MAP, HLR <-> VLR)

✔ **E interface** (MAP, MSC <-> MSC)

✔ **F interface** (MAP, MSC <-> EIR)

✔ **J interface** (MAP, HSS <-> gsmSCF for USSD)

✔ **Gr interface** (MAP, HLR <-> GMSC)

✔ **Gc interface** (GTP or MAP, GGSN <-> HSS, optional)

✔ **S6a/S6d** (Diameter, MME/SGSN <-> HSS)

✔ **S13** (Diameter <-> VLR)

✔ **S1 interface** (S1AP & GTP-U, YateENB <-> EPC)

✔ **Gn/Gp interface** (GTPv1, SGSN and GGSN)

✔ **S5/S8 interface** (GTPv2, SGW and PGW)

✔ **Gi/SGi interface** (IP, connects to Public Data Network)

Hardware Interfaces

✔ Dual Gigabyte ethernet

✔ DVI and HDMI video*

✔ USB for mouse and keyboard

✔ 12V Power supply, 100-240V AC, 50-60Hz (included)

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