

YateUCN™

The YateUCN is a unified core network solution intended for new GSM/GPRS/LTE networks, for upgrading GSM/GPRS networks to LTE, or for extending existing networks.

The YateUCN software-defined core implements all the functions and protocols of GSM/GPRS and LTE core networks in software, and uses commodity hardware. The YateUCN integrates the Mobile Switching Center / Visitor Location Register / Serving GPRS Support Node / Gateway GPRS Support Node / Gateway MSC (MSC/VLR/SGSN/GGSN/GMSC) nodes from the GSM/GPRS core network, and the SAE/VoLTE layers from the LTE network in a single server.



The unified core network solution is based on replacing the base station subsystem with the YateBTS (GSM) and the eNodeB with the YateENB (LTE). The YateUCN communicates with the YateBTS/YateENB using the SIP/S1AP/GTP protocols, instead of the more costly SS7 MAP-A interface (BSSAP protocol). This leads to a higher return on investment without affecting the reliability of the network or the provided services.

The YateUCN uses a JSON API for configuration and management.

Features and benefits

- The YateUCN runs on commodity hardware, allowing for a simplified network architecture and lower deployment costs.
- Enables carriers to deploy LTE networks with reduced initial investment.
- Allows for scaling as you go. You can add more servers or separate the functionality as more users adopt your service.
- Increases network resiliency; in case of equipment failure you can easily configure another server to take up the functions of the fault node.
- The SIP protocol establishes connection between the YateUCN and the YateBTS, allowing the SatSite base station to communicate with any YateUCN in the network. A Base Station Controller (BSC) is not needed between the YateBTS-powered SatSite and the YateUCN.
- Has low idle traffic, which allows transport technologies like satellite.

Software specifications

SS7 connectivity

- SIGTRAN, SCTP with CRC checksum
- M2UA, M2PA, M3UA
- ITU MTP, SCCP, TCAP
- ANSI MTP, SCCP
- ITU MAP v3
- CAMEL phase 2

Voice interconnect - SIP and RTP
- ISUP using external MGCP gateway

SCCP GTT - E.212 (ANSI)
- E.214 (ITU) translation table
- E.164

MSC/VLR - ETSI MAP v3
- Supported operations:
- MSC <-> AuC messages (authentication)
- MSC <-> EIR messages (equipment identification, optional)
- VLR <-> HLR messages (location management, roaming)
- MSC <-> SMSC messages (SMS)

SGSN/MME - ETSI MAP v3
- S1AP r11
- GTP v1
- Supported operations:
- SGSN <-> AuC messages (authentication)
- SGSN <-> EIR messages (equipment identification, optional)
- SGSN <-> HLR messages (data mobility management, roaming)
- SGSN <-> GGSN messages (data session)
- YateENB <-> SGSN messages (LTE control and user data)
- YateBTS <-> SGSN messages (GPRS control and user data)

SIP - Supported standards (RFC3261)
- Registrar function
- B2BUA for calls
- RTP (RFC3550) with sideband DTMF (RFC2833)
- SMS and USSD over IP

SMS - Format: SMS PDU (MO and MT)
- MAP/SS7 transport (T-PDU format)
- SIP MESSAGE transport (SMS over IP, R-PDU format)

Interfaces - C Interface (MAP, HLR ↔ GMSC)
- D Interface (MAP, HLR ↔ VLR)
- E Interface (MAP, MSC ↔ MSC)
- F Interface (MAP, MSC ↔ EIR)
- G Interface (MAP, VLR ↔ VLR)
- SIP, RTP (YateBTS ↔ VLR)
- S1 Interface (S1AP & GTP, YateENB ↔ EPC)
- Gi Interface (IP, connects to Public Data Network)
- Gn/Gp Interface (GTP, SGSN and GGSN)
- Gr Interface (MAP, SGSN ↔ HSS)
- Gc Interface (GTP or SS7/MAP, interface to HLR) (optional)

CDR - File format
- Rotation interval
- File transfer: FTP

CODECS and transcoders

- G.711a, G.711u
- GSM-FR 06.10
- iSAC
- iLBC

Operating system Linux based

Hardware specifications

Dell PowerEdge R430 3.5" Chassis with up to 4 Cabled Hard Drives

Processor Intel Xeon E5-2630 v3 2.4GHz,20M

Memory 8GB RDIMM, 2133MT/s, Dual Rank, x8 Data

Hard drives 1TB 7.2K RPM SATA 6Gbps 3.5in Cabled Hard

Hard drive configuration RAID 1 for H330/H730/H730P (2 HDDs) with Cabled Chassis

Internal controller DVD ROM SATA Internal for 4HD Chassis ReadyRails Sliding Rails With Cable

Power supply 550W

Network adapter Intel Ethernet I350 DP 10Gb Server Adapter, Low Profile

About us

Legba, Inc. provides innovative infrastructure for mobile operators.

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