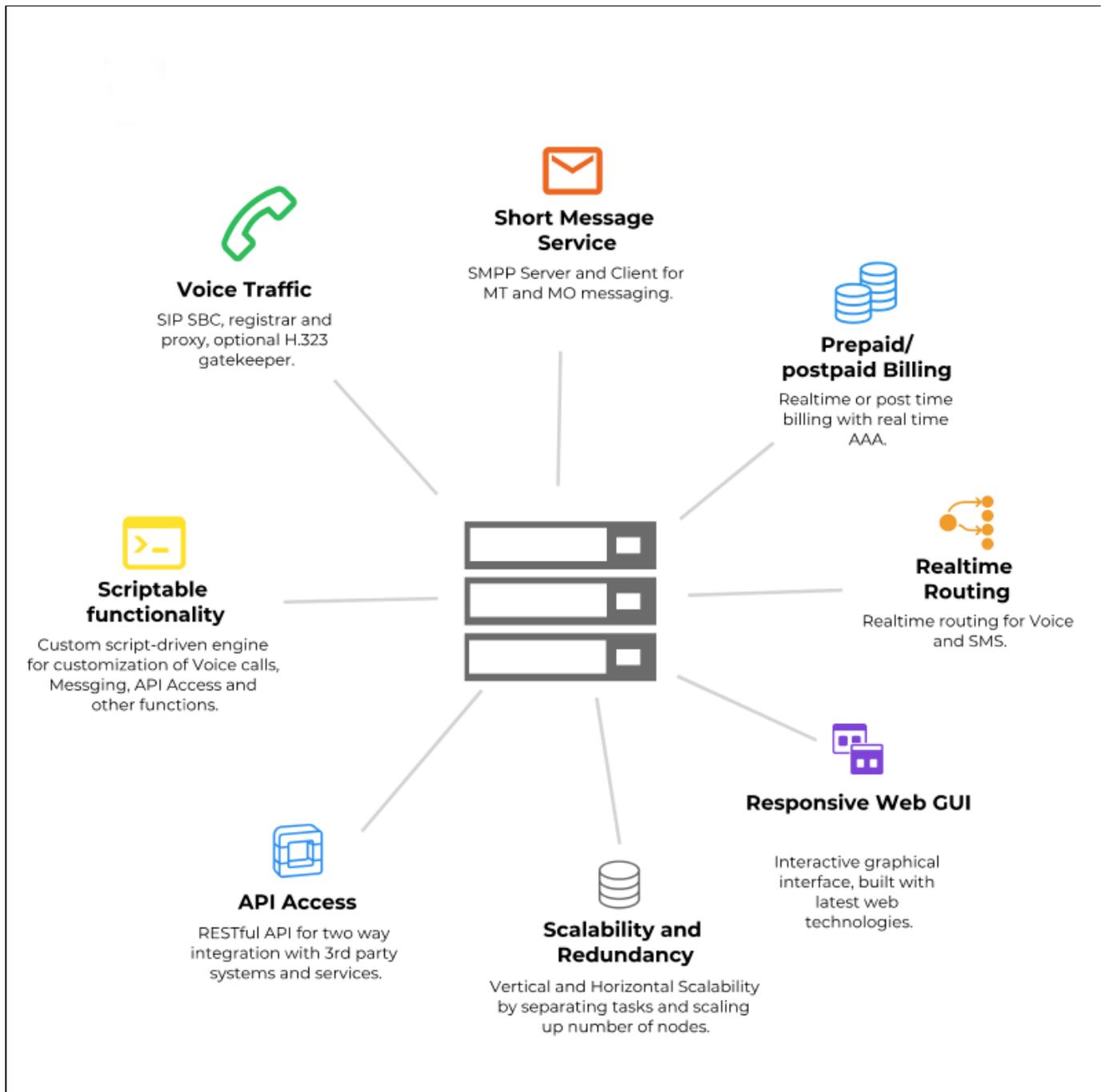# General Description

DTL SAARA is Integrated Voice and Messaging Platform. It features Prepaid/Postpaid Voice and SMS Authentication, Authorization, Accounting and Routing, as well as SIP and H.323 Voice switching and SMS switching and routing.

With decades of accumulated experience and billions of Voice minutes routed, DTL SAARA is by far most popular of our products. It includes everything you need to run your own telephony business.

Voice Traffic

SIP SBC, registrar and proxy, optional H.323 gatekeeper.

Short Message Service

SMPP Server and Client for MT and MO messaging.

Prepaid/ postpaid Billing

Realtime or post time billing with real time AAA.

Scriptable functionality

Custom script-driven engine for customization of Voice calls, Messging, API Access and other functions.

Realtime Routing

Realtime routing for Voice and SMS.

API Access

RESTful API for two way integration with 3rd party systems and services.

Scalability and Redundancy

Vertical and Horizontal Scalability by separating tasks and scaling up number of nodes.

Responsive Web GUI

Interactive graphical interface, built with latest web technologies.

Product information

DTL SAARA is a high quality Voice and SMS Telecom Platform featuring:

- prepaid/postpaid Billing and Accounting system for VoIP, TDM and Mobile Telephony services,
- Voice switching component (formerly ArrowSwitch), a SIP/H.323 switch,
- SMPP messaging service for MO and MT SMS delivery with prepaid billing and realtime routing
- Customizable, scrip driven multipurpose IVR engine.

All together it makes a complete Telecom platform that can be utilized to offer variety of services, including:

- Small to medium telephony operators offering alternative telecom services
- MVNOs
- Calling Card providers
- Mobile phone SIM-dialer and pre-dialer services
- Callshop chain operators
- Callback providers
- Call Termination service providers
- Wholesale traffic agents and brokers
- PC-to-phone, IP phone device services
- Two way Messaging services
- Customizable IVR applications

The components or DTL SAARA

- Web Management portal: a multi access level based, responsive control interface which allows full control of daily operation of the system;
- AAA engine: Prepaid/Postpaid capable Call and Message Authentication and Authorization system, includes real time and post-time Accounting module;
- Routing Server: Priority, Quality, Least Cost based Real-time Voice Call and Messaging routing server;
- SIP engine: Opensource SIP stack based, real time AAA and routing capable SIP SBC module;
- SMS engine: SMPP-protocol based SMS engine, capable of real time AAA and routing, MT and MO operations;
- Additional modules:
    - H.323 wholesale capable engine;
    - Javascript-based customizable IVR engine allowing to create custom call and messaging scenarious;
    - Deployment management system: controls scalability and redundancy elements of the SAARA package;
    - Multi-tenancy package: allows to create independend tenents on the same System instance.

Main highlights

- Retail and wholesale Voice (SIP SBC and H.323 GK)
- SMS Server and Client (SMPP) for MO and MT messaging
- Prepaid and postpaid realtime and post time billing
- Realtime Routing
- Multi-level Resellers
- Scriptable IVR, Messaging and API console
- RESTful APIs for external integration
- Responsive Web GUI
- Scalability and Redundancy built in

How to get it

DTL SAARA is available for purchase to be installed at your premises. It comes with free remote installation service, which can be performed within 24 hours of purchase. Any bugfix and security updates are free during the lifetime of the product, and free product updates during warranty period. You can also opt for support during after-warranty period.

For those interested on our Cloud based SAARA product, please Sign Up for Free Demo from our website. You can also use demo in case you would like to explore product before deciding to purchase or rent it.

Please see General Description to get familiar with the entities used in DTL SAARA

Main Concepts

Structure of the System

DTL SAARA has an integrated approach to the services and and entities served by the system. The important concepts of the system are Clients, Carriers, Products and Routing. They represent entities and processes accessible throughout the system.

Client

Client is main entity of SAARA which is subject to receive services, and apply charges and payments. every Client has its own one and unique account in the system, which records all transactions applied to the client. The state of account is represented by its balance which is preset in single currency. This balance is used to charge Client for services received, including but not limited to:

- Voice calls;
- SMS MT and MO messages
- Recurrent fees;
- One time fees;

Client can have one or many Accounts of different types which serve both as technical access credentials (i.e. usernames, IP addresses, etc) and corresponding service charge points. For example, if Client has assigned an IP address to it, it also serves as a designator which determines charges to be applied to the Client. An example of Accont can be:

- SIP Username/password pair;
- IP address of a SIP trunk;
- API access credentials;
- DID number;
- SMPP Username/password pair;

Typically Clients life cycle in the system starts with zero balance. Consumed services, like Voice calls, MT and MO messages, montly fees and other charges will decrease Clients balance. The balance can decrease until it reaches Credit Limit at which point it is not allowed to decrease further. There is no concept of unlimited credit in DTL SAARA because any resource has its limits.

Adding a Payment will increase Clients balance. Positive balance means that a Client has debit with you, and negative Clients balance means you have provided a credit to the Client. To disallow Credit, set Credit Limit to zero. Thus, services will only be allowed while their balance is positive.

Client has its own web access to the system where they can see reports, invoice, make online payments etc. The extent of options is determined by configuration.

Carrier

Carrier in many ways similar to the Client, in the sense that it has Accounts and a single currency Balance. The differences are that the Carriers are viewed as partners with whom business usually is either:

- vendor based (i.e. we buy services from them)
- wholesale based (i.e. we sell bulk servics to them)
- two way sales (i.e. both of the above)

Technically, there is no strict border between large Client and a Carrier. It will work properly in both cases. The differences are mainly in business relations (i.e. buy/sell), technical connection (i.e. Carriers can have subnets), and different types of reports.

Carriers as vendors call sell different services, for example Voice or SMS or both.

Carriers balance will increase when we consume services from them. For example, our SIP carriers balance will increase when we send calls them. That is logical, because we owe them, therefore their balance is positive with us. If you have made a prepayent to your vendor carrier, it should be reflected with a Payment in the system (type: OUT since money goes from us to them).

Carrier has its own web access to the system.

Product

Product is an important concept in DTL SAARA. Product is a combination of services offered to the client like:

- Voice Rates,
- SMS MO and MT Rates,
- montly fees

and s set of technical means to deliver, like:

- Voice Routes,
- SMS Routes,
- Prefixes
- Origination details

When creating a Product, above mentioned elements and bundled, or mapped together. Then, they are applied to Client and its Accounts. That provides convenient way to exactly set required rate tables, and corresponding routes to the Client, and avoid errors. Note that this allows to effectively create a multi-quality / multi-price paackages, and apply to a Client with adding just one Product.

There can be separate Products applied to different Accounts of the same Client.

Routing

Routing is a mechanism to select desired routes via one of preferred methods. There are separate routing in DTL SAARA for:

- Voice
- SMS

Each of the above Routing types have a possiblity to create any number of Routing groups. Routing groups are independent each from other, and they can be bind (mapped) into Product. One Routing Group can also be mapped into multiple Products.

Each of the Routing Groups provides a set of Routes.

Technical Specifications

General Data

- Prepaid/postpaid multilevel Reseller, whitelabel branding billing
- Based on LINUX or FreeBSD platform
- SIP proxy and Registrar for retail and wholesale
- H.323 gatekeeper for wholesale
- Codec trans-coding: G.729a, G.723, G.711, GSM, iLBC, Speex
- SMPP v3.4 support for SMS and MMS
- Multiple Reseller levels
- Web based access for all levels, including enduser
- Unlimited number of accounts, PINs, rate tables
- Unlimited number of Carriers
- End users access interface
- Wholesale carriers/partners interface
- DID number support
- IVR for calling card support
- ANI (DID) based callback
- Active Calls display
- System activity Reports, troubleshooting tools

Retail Account Management

- Account authentication by username/password, ANI (calling number) or IP address
- Assignment of reseller
- Preset initial credit and currency
- Different Account expiration types (fixed date or fixed number of days after first use)
- Assign multiple rate tables (via product mapping)
- Assign one or multiple Recurring services, e.g. monthly or other fees (via product mapping)
- Assign multiple sub-accounts (aliases)
- Location profile to ensure shortened dialing within country
- Setting of IVR language and IVR options
- Extensive Account info page (address, contacts, email, etc)
- SMPP accounts
- API access accounts with HTTP Header Token and HMAC-SHA256 authentication

Wholesale Account (Carrier) Management

- Authenticaion by IP address or IP address range (subnet) or IP + prefix
- Universal Voice and SMS account
- Multiple accounts per Carrier
- Option to register with remote SIP Carrier (multiple registrations simultaneously)
- Registration status report
- Web access username and password of Carrier
- Multicurrency

Batch PIN Management

- Calling Card PIN Generation
- PIN activation /de-activation (single and batch)
- Different PIN length, prefix (initial digits), optional password for PIN
- Manual or bulk recharge of PIN or batch of PINs
- PIN upload from text file

Reporting

- Payment history report
- Invoices and corresponding CDR reports
- Reports on Payments received during a period
- ASR / ACD reports: total, by carrier, IP (hourly, daily)
- Call Disconnect Cause Reports
- Real time balance reporting

Rating and Billing Management

- Unlimited rate tables in the system with ability to universally assign them to End user (PIN, ANI, etc), Carrier account (terminating / originating) or Reseller
- Allow to add DNIS-based surcharges to any rate table, based on: dialed destination number and dialed access number
- Create/edit/upload/copy/delete rate tables
- Multiple rate tables per account or reseller via dialed prefix
- Caller ID range based rate table assignment
- Replace rate tables with new by specifying effective start time of particular table
- Rate tables for Voice calls and SMS
- Rate tables properties:
  - rates based on Country code, City code, longest digit match
  - multiple currencies, individually set per destination
  - rate per call duration time (rate per minute)
  - rate per call connect (rate per call)
  - variable call duration increment
  - free non-chargeable duration (grace time)
  - round-up short duration calls to specific duration
  - variable number of seconds in minute for IVR purposes
  - enable/disable particular destination or destination block
  - rates based on day or week or time of day
  - minimum and maximum number of digits in destination number
- DNIS-based Rate surcharge properties:
  - surcharge based on dialed access number and destination number prefix
  - rate per minute surcharge
  - rate per call surcharge
  - surcharge currency
  - IVR language based on Access number dialed
- Recurring services properties:
  - activate based on usage start criteria (account created / account in use)
  - Service run number of cycles or until stop criteria is met
  - Stop criteria: account disabled, account no balance
  - Services run periods: daily, weekly, monthly, bi-monthly

Routing Management

- Unlimited number of Routing groups
- Routing Group can hold unlimited number of Routes
- Multi-level failover routing
- Round robin routing for equal priority destinations
- Percentage distributed routing based on Terminating Account capacity
- Huntstop on any route
- Manipulate the DNIS of a called number and pre-pend a technical prefix for advanced routing
- Least Cost Routing
- Upload Routing tables from text file

Calling Card and IVR Management

- PIN based and PINless (ANI) based calling card support
- Automatic ANI registration
- Muliple language and currency support
- Dial-in number to inquiry the balance of account
- Balance announce, remaining time and call rate announce

Enduser Selfprovision Interface

- Signup via web interface, with various access options
- Controllable rate plans and initial credits
- Call detail, call summary, invoice and payments reports
- Multiple payments methods: recharge voucher, Paypal, authorize.net, Moneybookers, Barclaycard, Ogone
- PDF invoices
- Speed-dial number directory (10 entries)
- Web-callback (with pre-defined numbers)