

# vSMSC PLATFORM



A high-performance least cost routing virtual SMSC platform that delivers superior global mobile messaging and customer management

## WHAT IS A vSMSC

The Cellfind Mobile vSMSC Platform is an enterprise grade SMSC system that is used by WASPS, Banks, Enterprises, and Aggregators around the world to deliver global least cost SMS routing solutions. The key feature of the vSMSC Platform is its flexible routing capabilities, allowing for both Least Cost & Priority Routing.

Built on a Kannel foundation, with extensive performance enhancements, the vSMSC is capable of processing more than 1000 messages per second, and is designed to handle tailored message routing, priorities, billing and reporting for over 50 million messages across multiple customer accounts in a single day. The powerful and robust SMSC architecture has an extensive range of features for message routing, system management, customer accounts and reporting built in that extend far beyond any comparable SMSC solution.

### SUMMARY OF FEATURES



#### Messaging

- High-speed batch processor
- Least cost routing
- Priority routing
- Routing filters
- Two way message tagging
- Short Code management



#### System

- Highly optimised Kannel
- Access Control (User Permissions)
- User Audit Logs
- Network, country and currency agnostic
- Billing Management
- Extensive performance optimisations
- Real-time database replication
- DRBD file replication



#### Reporting

- Activity Overview
- Report Builder
- Payment Reports
- Service monitoring
- Queue monitoring
- Gateway monitoring



#### Customer Accounts

- Full customer interface
- Billing Management
- SMPP & HTTP APIs
- Global currency management
- E-commerce enabled



#### Additional Components

- Online Billing Services

## TECHNICAL OVERVIEW

### DATABASE SYSTEM

The Platform described has been designed to run on a MySQL 4.1 or higher database system. It takes advantage of the binary logging features, InnoDB data space and various other capabilities of MySQL to ensure maximum performance and stability. The Platform uses table and data partitioning strategies to ensure large data sets do not compromise the speed of the system.

### SUPPORTED OPERATING SYSTEMS

The system runs on any POSIX.1 compliant Platform. These include FreeBSD, Linux, Solaris, Mac OS X and others. We do however recommend using RedHat Enterprise Linux and/or CentOS distributions due to their increased stability.

### OPEN SOURCE COMPONENTS

The core Platform itself is a heavily customised version of Kannel, which makes use of a number of open source libraries such as MySQL, LibXML and OpenSSL. We are fully compliant with the licensing of Kannel even though many of our competitors choose to ignore it.

### SMPP v3.4 COMPONENT LICENSING

The Platform provides a fully functional SMPP v3.4 client offering the option to integrate external business applications and solutions into the system.

# ROUTING ENGINE

## Least Cost & Priority Routing



The key feature of the vSMSC Platform is its flexible routing capabilities. Multiple SMSCs can be added to the platform and least cost routing profiles can be configured to take advantage of the least cost for each network across all SMSCs. Message traffic is load balanced across multiple binds for an SMSC and can be prioritized to enable time-sensitive traffic (e.g. one time pins) to bypass large bulk messaging queues allowing quality of service to be maintained across customer accounts.

## Inbound Routing



In addition to the outbound routing features the vSMSC Platform has extremely powerful inbound (MO) routing. Numbers or number ranges can be configured per gateway (operator/SMSC) and then these can be delegated to a particular user for delivery either via SMPP or HTTP.

Numbers can also be shared amongst many users, but differentiated by keywords. As messages are received with a matching keyword attached, these will then be routed to the correct user as before. Inbound (MO) messages can also be billed if desired.

# USER MANAGEMENT

## Customer Account Management

Extensive customer account configurations are available including currency, country, default prefixes, allowed protocols (HTTP & SMPP), throughput and overdraft facilities.

Routing profiles and filters can then be applied to customer accounts to control network level traffic routing, network pricing, traffic priority and more. Billing management tools and reporting make managing hundreds of global customers significantly easier. All of these tools allow for flexible account configurations to be applied to each customer account.

## User Access Control

System users who have access to the vSMSC back end can have limited access enabled to prevent them from changing or viewing sensitive areas of the vSMSC system. This is done by creating 'system roles' that have granular permissions throughout the system and then applying the roles to the system user accounts. Permissions can be allowed on specific customer accounts only, if desired, and applying multiple system roles to a backend system user can allow for a highly tailored level of access for different

operational, development, customer service, routing, support and finance department system users.

## User Audit Logging

The vSMSC logs all system user actions and changes made to the system. This allows for transparent accountability for any operational issues that may arise. Audit logs can be searched by date and user.

Username	Email	User	User Status	Product Status	Balance	Actions
admin@cellfind.com	admin@cellfind.com		Active;Overdraft;Tagging Enabled	SMPP;HTTP	-1.75400	Select Action
test1@cellfind.com	test1@cellfind.com		Has made payment	HTTP	100.02000	Select Action
test2@cellfind.com	test2@cellfind.com		Active;Has made payment;Tagging Enabled	HTTP	200.00000	Select Action
test3@cellfind.com	test3@cellfind.com		Active;Tagging Enabled	SMPP;HTTP	0.00000	Select Action
test4@cellfind.com	test4@cellfind.com		Active;Overdraft;Disable opt-out;Tagging Enabled	SMPP;HTTP	0.00000	Select Action
test5@cellfind.com	test5@cellfind.com		Active;Overdraft;Disable opt-out;Tagging Enabled	SMPP;HTTP	0.00000	Select Action

# BILLING MANAGEMENT

The vSMSC Platform has a tightly integrated billing system, managing all processes within the gateway. Accounts can be set to allow an overdraft or work on a strictly prepaid basis. The billing process can be used for management of e-commerce transactions or internal budget allocation across multiple departments.

## Billing points which can be set:

- Pre/post paid billing on outbound (MT) messages, defined per destination, per operator.
- Post paid billing on inbound (MO) messages, defined per number, per
- Post paid billing on inbound (MO) numbers, which can be billed per day, week, month, quarter or year.
- For users to deposit funds into their accounts, there are some pre-built modules available, such as
- Bank Transfer (manual approval)
- PayPal
- These can be approved via the administration console, or transactions can be manually added to user accounts.

User	Payment Method	Currency	Status	Amount	Created	Log	Actions
monaco	Paypal	United States Dollar	Pending	28.21000	2013-10-17 06:18:08	Created payment	Select Action
monaco	Paypal	United States Dollar	Pending	55.59000	2013-10-17 06:12:38	Created payment	Select Action
loma	Bank Transfer	South African Rand	Pending	1026.00000	2013-10-17 01:00:40	Created payment	Select Action
monaco	Bank Transfer	Euro	Pending	10.12000	2013-10-16 22:32:17	Created payment	Select Action
monaco	Paypal	United States Dollar	Pending	55.59000	2013-10-16 22:31:18	Created payment	Select Action
joelle@monaco	Bank Transfer	Euro	Pending	6.80000	2013-10-16 16:04:52	Created payment	Select Action

# ADVANCED REPORTING

## Report Builder

The Report Builder can create and save custom reports using any outbound messaging data in the system. Quickly identify which gateways and countries have underperforming message delivery, compare your total gateway and customer costs, see your top customers for the year and create any other reports you could possibly want. Report results can be grouped, ordered, graphed and exported as CSV files for further processing.

**The Report Builder can construct reports using the following data over a specified time period.**

- \* Volume Processed, Delivered,
- \* Pending or Failed.
- \* Success Percentage (Delivery)
- \* Total Gateway Cost
- \* Total User Cost
- \* Average Delivery Time
- \* Average Queue Time
- \* Countries
- \* Networks
- \* SMSCs
- \* Customer Accounts
- \* SMS Gateway Currencies
- \* User Currencies



## Cacti Monitoring

Advanced Cacti monitoring with custom reports can be setup to measure key system performance metrics such as server memory and CPU usage, database I/O speeds, gateway queues and more.

## Nagios Alerts

Traffic delivery is probatively monitored. If a specified delivery threshold is not met for an account within a specified time frame or an SMSC becomes unavailable, a service issue is automatically created and SMS / Email notification are triggered to the support team to resolve the issue

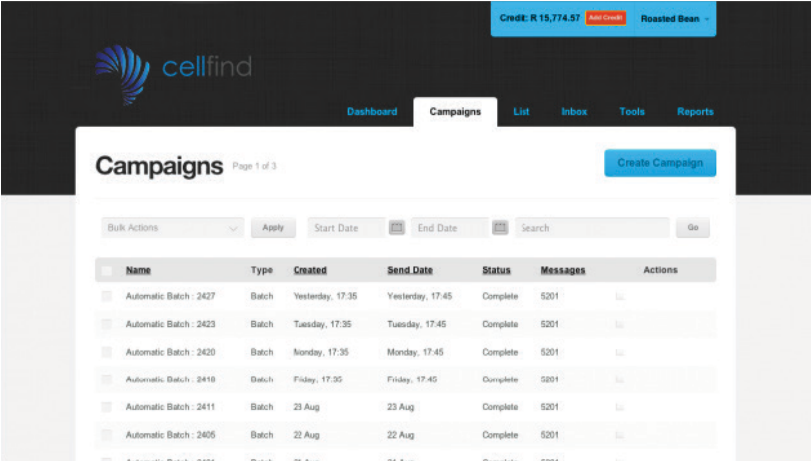
## Additional Reports

Additional reports allow for the searching of payments, messages, blocked numbers.

# USER FEATURES

Customers have access their own web accounts where they can send messages, manage contact lists, view inbound messages and account reports.

Users can send messages using their online account interface or HTTP and SMPP APIs. Message sending throughput speed can be configured to send at maximum allowed speed or be throttled incrementally down to 5 messages per second. This can be useful to avoid flooding certain systems when data is returned. Macros allow for personalised data such as First name and Surname to be included in messages giving your messages a personal touch. Batch messages can be created by uploading a CSV file containing the number and unique message for each intended recipient. Sends are executed by a dedicated background process and can be monitored, paused or resumed during processing.



## Payments

The Platform allows for payments to be made by end-users. This can either be a fully automated process, or require payment approval by an administrator. An end-user can simply login to their control panel, and select the 'add credits' link, which will then allow them to proceed to payment. Administrators will be notified of all payments, which they can then approve or decline via the billing section in the administration console.

## Notifications

The Platform provides email and SMS notifications to end-users as well as administrative users. User's can elect to be notified when their account balance drops below a certain level, so that they can top up. In addition to this they can receive their daily costing reports via email. Customers have access their own web accounts where they can send messages, manage contact lists, view inbound messages and account reports.

## Sub-Users

To keep things simple the Platform allows existing users to create sub-users. This could be to organise divisions within a company for easier tracking of information. Sub-users can either have completely separate billing, or they can be billed from the owner account. The administrator can also to set certain users as 'resellers'. Resellers have their own pricing (as per normal) but in addition to this, resellers can set their own custom pricing for their sub-users. When messages are sent, both the reseller and the sub-user are billed at the applicable rates. This allows for easy franchise businesses to start up and create other revenue possibilities.

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