SIM Management Platform and Portal

Our SIM Management System and portal provides an easy-to-use, enterprise-class IoT management platform for our clients. We have developed the system in response to our customer's needs to effectively, efficiently and securely manage the connectivity of their dispersed, mobile as well as static IoT devices.

We help customers assure their real-time critical day-to-day operational connectivity of devices. Providing immediate visibility of a device's connectivity status and usage. Clients can explore, view, control and manage entire, dispersed populations of SIMs in real-time, via a straightforward interface.

The system provides a complex and powerful set of editable functions and API. Forward-looking management is instituted by calculating predictive data. Forming part of configurable usage warnings and alarms. Auditable and historical information are represented for more detailed analysis and for viewing trends.
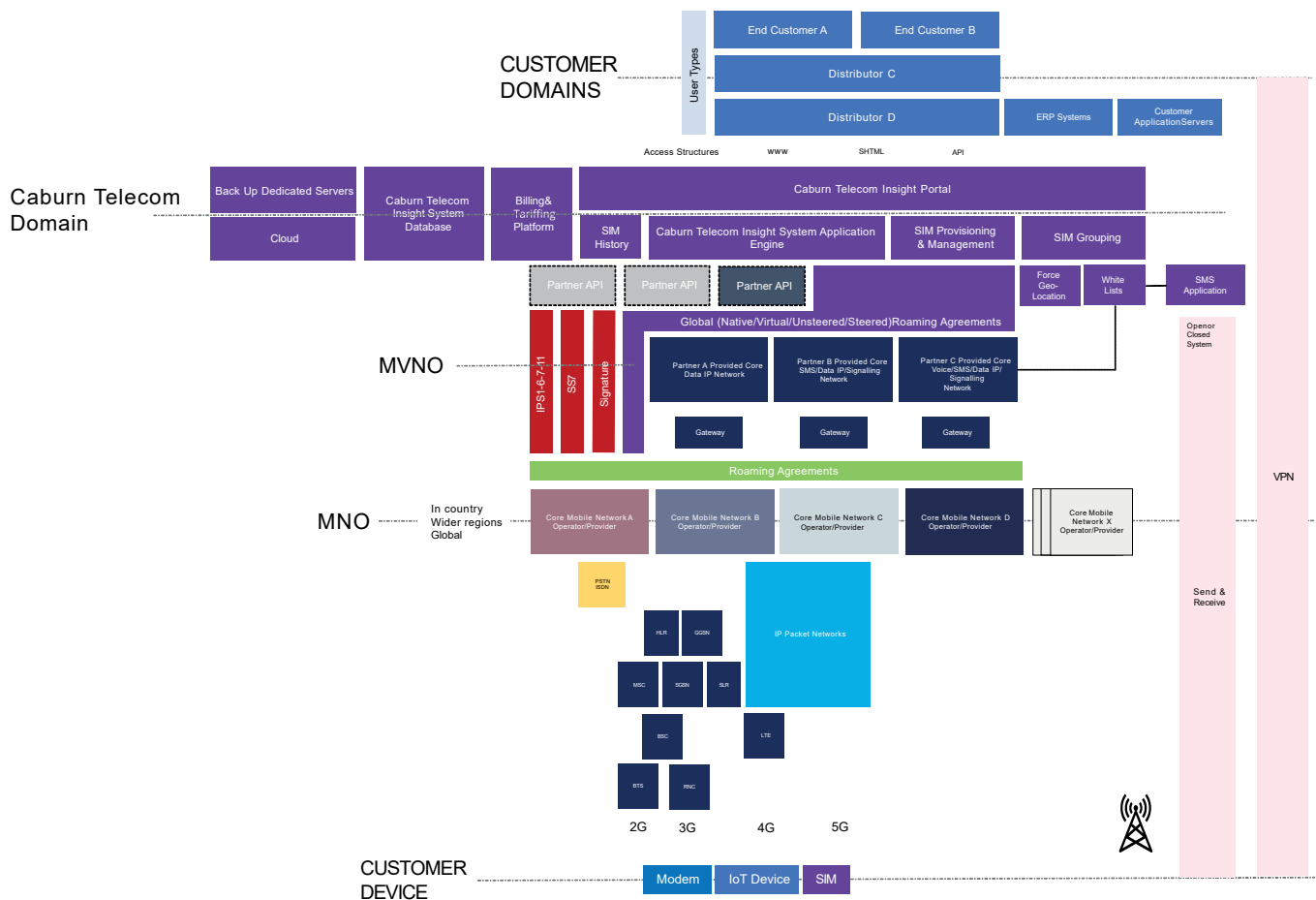
![Caburn Telecom logo] Caburn Telecom — Part of the CSL Group

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Caburn Telecom - System Architecture

Caburn Telecom's systems are developed to provide IoT service providers (and if desired your clients) with complete visibility and control of your SIM populations. Our simple web portal gives access to a powerful and highly- sophisticated management system. Enabling the viewing, controlling and reporting of the connectivity status or usage levels of individual as well as searchable and definable groups of SIMs.

This requires Caburn Telecom to manage a complex series of live and dynamic system interfaces. Our systems allow actual usage to be viewed in real-time. The Caburn Telecom system also provides highly sophisticated actual and forecast usage functions. Meaning customers avoid the shock of end of month bills or unexpected costs. Instead, proactively managing groups of devices by alarm or exception. Allowing the changing of SIM('s) connectivity parameters or status.

Caburn Telecom's systems are ideal for those applications that require either; high levels of geographical coverage, safety/critical assurance, system resilience or quality of service. For example, fleets travelling to diverse/remote locations, crossing national borders, or for those staff who must work and report within potentially hazardous locations. Our systems allows the management of dispersed mobile and static devices. For example, static devices benefit from Multi- network roaming as signals and networks are dynamic.

A single network's coverage can deteriorate due to high- usage, signal attenuation, weather-conditions or network problems. Our SIMs/systems are therefore used in applications as diverse as static industrial equipment, cruise ships, mobile/lone worker tablets/fobs, vehicle telematics, dash-cams, security cameras and smart buildings.

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System Features

Understandably, IoT projects and managing devices connectivity can be highly complex. Caburn Telecom's systems are designed to make these processes as simple as possible. The customer portal uses a highly-intuitive web-interface. Providing an easily accessible GUI for viewing, analysing and managing SIM populations. The portal allows data Import and export via office tools such as spread-sheets. Clickable links, screens layouts, step-by-step graphics, help screens and reminders direct and provide live updates. Error messages help guide users, while the Caburn Telecom support team can help should you encounter difficulties.

Multi-Level Distributors/User Management & Configuration

IoT service providers often operate within dynamic value chains. Distributors or end-customers may need to be given access to limited SIM management functions. Different forms of access and portal branding are therefore supported by Caburn Telecom's SIM management systems.

Hierarchical Account Roles can be assigned for accessing subsets of the system's features. Sub-distributors, however, remain controlled by the parent distributor account. SIMs or groups of SIMs can be controlled or transferred between sub-distributors as required. Available user types are; Administrator; PowerUser; Customer Operator; Customer User; & SMSOnly. Administrators can view an inventory of all users assigned to the account. Providing information on; user names, user roles, user options, registered emails, who is logged-in, last activity and whether anyone is locked out. Existing accounts can be modified to; update email addresses, reset passwords, select customer restrictions and specify user roles and options. New accounts can also be added and old ones deleted.

Portal Re-branding. To provide a more seamless interface, client's web portal access can be re-branded with distributors, sub-distributor's and end-customer's headers and logos. Images in .png, .jpg and .gif format can be imported to replace the tandard' Caburn Insight' portal branding. If no Banner image is uploaded for a sub-distributor or customer, the image set from the next level-up distributor is instead used.

Advance Network Warnings

Users of the Caburn Telecom Insight system and Status Site are provided with advance status warnings of any core etworks maintenance plans. This is provided through automated email and advises risks of potential service degradation or network unavailability. Users can set the level of service risk which they wish to be notified/informed at.

Management & Control (SIM Groups)

Once you are set up and connected to the Caburn Insight system, it provides a complex and powerful series of viewable/editable functions. The system records SIM types, their network configuration and fundamental specification. While individual SIMs can have their own levels, to aid their management they are usually organised into groups. Normally, it is helpful if usage/traffic is aggregated across a SIM group. This means high usage bursts by individual SIMs are absorbed across the group. Provided usage remain within the aggregated allowance, additional charges are therefore avoided.

These groups provide a unique series of pre-configured common operational parameters for SIMs, including; tariff-groups, functional-states, regional roaming settings, bundle-allowances, tariff definitions, high-usage alert-levels & cut-off limits. Customers therefore don't need to set and manage parameters for every SIM, but instead can place them into or move them between appropriate groups. This is important as devices/SIMs typically move between various functional states. These SIM groups can be analysed by clicking on them. SIMs included within the group and their attributes can then be viewed in more detail.

Data Allowance

1.5
2
3 MB Per Month
5
10
Etc..

SIM Type

UK 1-NET
UK Multinet Optimum 2
UK Multinet Optimum 3
UK Multinet
EU Multinet Optimum
USA/Canada Multinet
LatAm Asia Multinet
Global Multinet
Extended Global Multinet
Etc..

Alert Limit

2
5 MB
5
10
Etc..

Suspend Limit

10
15
20 MB
30
Etc..

Group Status

Pending
Live
Suspended

.

Tariff Group then can be assigned to any of your SIMs with one click...

Group Name

ABC Tracking 3MB EU Multinet

System Features

SIM Status, Manual or Auto Activation. SIMs can be placed in a number of states to save costs. For example, new SIMs can be placed in a 'pending' status where they do not connect to the network. Once the factory testing provision is exceeded, the SIM can be placed in the 'automatic activation group'. SIMs alternatively can be manually activated remotely by using the Caburn Insight System when needed. Similarly, SIMs or groups of SIMs can be hibernated or suspended at any time.

SIM Finder, Focus & Action. Individual SIMs can always be searched, filtered and identified for further examination. All the information pertaining to an individual SIM is easily accessed, including; traffic records or charts/graphs which illustrate network usage. Additionally, a history of all actions performed on the SIM and their custom assigned data can be viewed. SIMs can be actioned via characteristics or filtered fields. For example, to i) assign new custom inform- ation; ii) assign or change customer designations; iii) assign 'auto-activation' to certain groups; iv) manually activate SIMs; v) move SIMs between tariff groups; vi) modify warnings and cut-off levels; vii) temporarily deactivate SIMs; or viii) close SIMs.

Configurable Usage Warnings and Cut-Offs. Alerts can be configured for individual SIMs or groups. This is to warn of problematic actual or forecast usage-levels to allow preventative action can be taken. This is applicable to each form of network traffic, including data, SMS & voice. Sliders can be used to adjust the number of SIMs shown in histograms to help select appropriate warning and cut-off levels for groups. Helping to reveal 'normal' operating ranges. Automated email notifications can be selected if desired. They can be triggered when out-of-bundle (data, SMS and/or voice charging), out-of-zone usage or aggregated group totals exceed the set warning levels. If required, these warnings can be directed to sub-distributors or end- customers. Should levels be exceeded, new trigger-levels can be set and new warnings triggered when exceeded.

Traffic Reporting. Easily viewable and detailed reporting for active SIMs is provided. This feature provides access to all traffic records for the last three months.
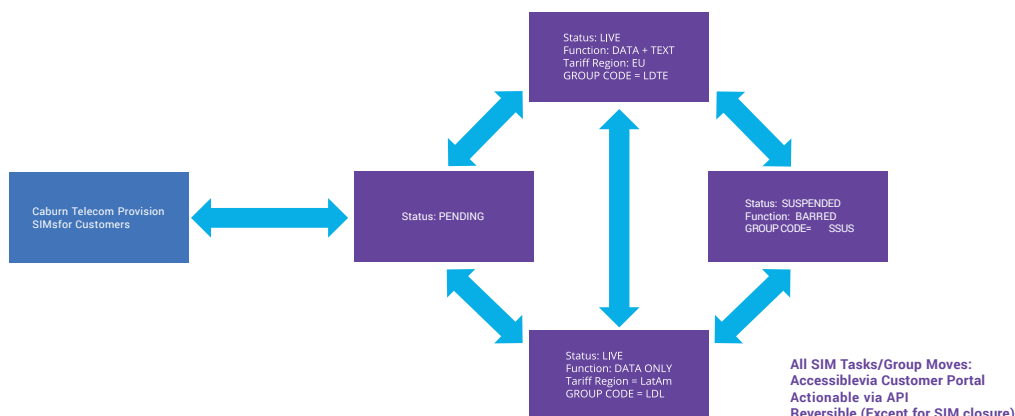
Searches can be filtered by setting search parameters or individual SIM numbers or group ranges. The system also uses graphical analysis tools to help reveal further insights. Helping to identify those areas requiring closer examination. Search results can be amended to allow alternative perspectives or to export data for further off-line analysis. The records are searchable to an individual traffic session. SIMs with no traffic are also visible which can help indicate operational issues.

Geographical Reporting

Zone Look-Up, Last Country Used & Out of Zone Usage.
This feature allows users to check which geographical roaming/charging areas and countries are included in each tariffing zone for a specific SIM type. A dashboard shows the last country each SIM has been used in, together with a geo-breakdown of each country and the SIM density distribution. Clicking a country on the map or charts brings up a list of those SIMs which have connected that month. The country and current network name & its status can also be queried from the network API. Some SIM types also provide a cell- query function to find a device's current active network cell-location. The Caburn Insight system can also force the network to cancel a SIM's location to force an individual device to perform a location update. Detailed logs are held of these location queries and their results.

Traffic in geographical zones outside of a SIM-plan's defined base-tariff zones are chargeable at rates described in each's tariff description. Any out-of-zone charges are incurred as soon as any usage occurs, and the scale of the charge depends upon the out of zone context. Any out of zone charges are therefore highly-visible within the system dashboard. SIMs affected can be clicked-on to analyse their detailed traffic records. Affected SIMs can be moved into a more appropriate roaming groups if needed.

Status: LIVE
Function: DATA + TEXT
Tariff Region: EU
GROUP CODE = LDTE

Caburn Telecom Provision SIMsfor Customers

Status: PENDING

Status: SUSPENDED
Function: BARRED
GROUP CODE= SSUS

Status: LIVE
Function: DATA ONLY
Tariff Region = LatAm
GROUP CODE = LDL

All SIM Tasks/Group Moves:
Accessiblevia Customer Portal
Actionable via API
Reversible (Except for SIM closure)

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System Features

Usage Dashboards & Full SIM History. The main Caburn Insight screen provides a snapshot in real time of the SIM estate. This includes the total forecast charge for the month and the average forecast cost per SIM. There are also three usage sections; one each for data, SMS and voice services, They show the usage per SIM to date and a projection of the month-end usage assuming the usage continues at a similar rate. As the month progresses, the forecast naturally trends towards the final monthly value of the bill. Each SIM group's key metrics are detailed and colours highlight those areas needing attention. Amber indicating those SIMs at warning-levels. Those over their usage or cut-off limits being emphasised as red. Further graphical summaries and detailed reports can be explored if needed. Trends and anomalies can be viewed as well as how usage extends across the population.

Charts include a variety of totals, records, data-used, voice-minutes, SMS messages, networks-used, traffic-types and those countries travelled. Distributions of those SIMs that have generated large numbers of sessions are presented.

Custom Information. Specific information can be added and assigned to individual SIMs or groups. For example, customer names can be assigned to SIMs as required. Full customer details can be added so that addresses and contact details are linked to the SIM details in your system records. Such data can be easily imported from spreadsheets. Numerous email addresses can also be entered and selected if they are to be addressed by automated email alerts or notifications.
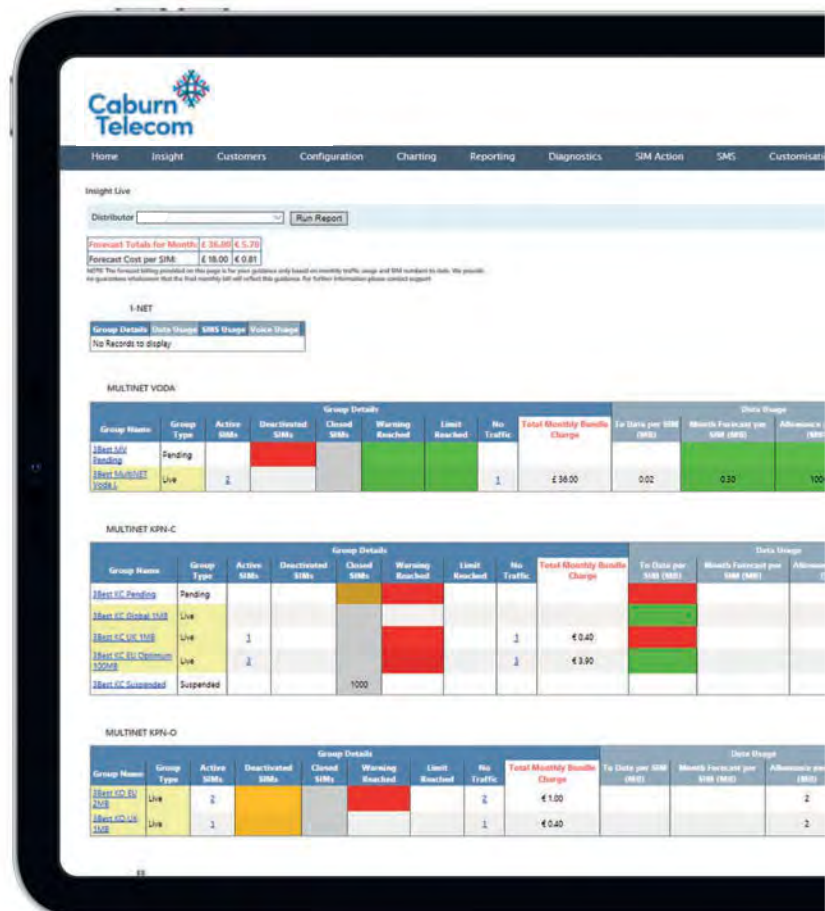
Green
All OK, No Action Required

Amber
Alert Level Reached, Need Attention

Red
- SIMs suspended for over-use
- Out of Zone roaming identified
- Urgently require attention

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SMS Usage

There are three distinct types of SMS as defined by the system; MT (Mobile Terminated) SMS to your IoT device; MO (Mobile Originated) SMS from your IoT device; MOIP (Mobile Originated & terminated over IP). Each has different charging structures, but to achieve the best flexibility we specify the SMS allowance regardless of the SMS type. Therefore, to provide a summary of SMS usage we use an aggregated charge for all three types. The figure provided on the Caburn Insight is system is the SMS charge per SIM. This is forecast forward for the month and the allowance subtracted as SMS credits are used. Geographical locations and any out-of-zone charging are advised. The system also allows extra-credit to be provisioned against certain SIM groups.

Open or Closed SMS systems. Caburn Telecom provide both open and closed SMS systems. This is defined by the SIM's fundamental parameters and cannot be changed once the SIM type has been selected. Customers therefore need to consider whether SMS messages need to be sent between the IoT devices and the central servers only (closed) or whether they need to be exchangeable with other third-party users or mobile device apps (open).

Telephone Number White-Lists. Configuration and logging pages allow Caburn Support to configure origination and destination white-lists for calls and texts for certain SIM types which support this feature. IT can provide extra security and avoid misuse, unwanted or malicious interven- tions.

Closed User Group SMS Functions

Caburn Telecom's systems allow SMS messages to be sent from, and be received by the Caburn Insight Portal. Receiving SMS via the portal requires that devices be configured to use the SMS origination telephone number to send any replies to.

SMS Broadcast Management. SMS messages are often used to instigate IoT device actions. A good example is when devices require the extra security of a pass-code unique to each device delivered as part of a message. To facilitate, SMS messages can therefore be managed and sent to groups, ranges or single SIMs(devices) by the Caburn Insight system. User access to this area is secure and configurable. Lists of ICCID's and text messages can be (bulk) imported from spreadsheets and configured for delivery to the desired devices. Regularly used messages can be saved for future re-use. Any invalid or duplicated SIMs are identified, although duplicated SIMs can be processed to allow the sending of several different messages to the same SIM. URLs contained within any SMS messages can be checked & followed as web-links.

SMS Status & Logging. SMS messages that are managed and handled by the portal (or its API) can be logged and compiled to check their transmission and reception status. The sending process is managed asynchronously and displayed with live progress counts. MT types messages and their status is updated at each stage of delivery. If messages are not delivered immediately they are queued (sent if or when the mobile device becomes available). This can also be a useful tool for checking whether devices are connected to a network.

A historical log of Portal handled SMS traffic is provided (with time-stamps and message content). The results can be filtered by a variety of searchable parameters; date/time, group, customer, custom fields, ICCID or telephone numbers. Messages sent to devices from third party platforms or other mobile phones will not be logged as they are not handled by the system. Similarly, if a device sends an SMS to another mobile number or platform, it will not be logged. Such traffic will appear, however, in the traffic details log as expected for charging purposes.

User accessibility to the content of saved SMS messages is configurable. Available forms of access include; all access with management; all access without management; my messages only; or no access. The content of messages can therefore be hidden from users.

SIM Billing History

A history detailing the state and breakdown of all SIMs is provided at each month-end billing period. This can be exported as a PDF document. The data for the previous month is typically published in the first three or four days of the new month.

Caburn Telecom brings together a team of experienced global telecoms professionals with a vision to deliver engineered solutions and the highest levels of service to customers. Caburn Telecom have large numbers of SIMs which are deployed globally within a diverse array of IoT applications & infrastructure projects. Our team therefore has extensive experience of working with a variety of types of devices, managing their connectivity/ network-access through a range of product offerings.

If you are interested in how our SIM solutions and dedicated/ cloud-based insight systems can help you to cost effectively manage your network, please contact us for a quote or to arrange a demonstration.