

# InfraCare Functionality

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## 1. INTRODUCTION

InfraCare, the customer centric CRM system is made up of two applications: InfraCare Admin and InfraCare. InfraCare is the application used by customer service representatives to manage customer relations. InfraCare Admin is used to control the administrative parts of the system. Product offering, resource management, and configuration are all managed using InfraCare Admin, Individual customer accounts are managed using InfraCare. This document describes the important features and functions available in **InfraCare Admin** and **InfraCare** that can help navigate your business to greater profits.

## 2. INFACARE ADMIN

InfraCare Admin allows easy management and maintenance of a provider's product offering. Using InfraCare Admin new products and services can be rapidly rolled out in response to dynamic market changes allowing providers to stay ahead of the competition. InfraCare Admin provides customization tools that are able to support creative pricing and rate schemes, enabling providers to achieve optimal product offering and pricing scheme.

InfraCare Admin provides the tools required for maintaining and operating the InfraCare system. It includes online applications for the maintenance of system tables and for the creation and definitions of audit trails. In addition, system operations and scheduling of jobs are carried out from the InfraCare Admin windows.

InfraCare Admin supports administrative functions, including:

- Managing resources (Phone, IP address, user name, etc.)
- Supervising currency rates
- Maintaining product items (one-time and recurring charges, rate plans, discounts, promotions, etc.)
- Organizing service packages
- Defining billing periods (billing cycles)
- Managing and defining letters that can be sent to clients
- Defining workflow tasks and queues
- Managing access to the user interface
- Defining relation types
- Managing system parameters and tables

The module provides a user-friendly interface that allows quick definition of new offerings to customers in a flexible manner.

### 2.1 PRODUCT CATALOGUE

InfraCare Admin provides a convenient and flexible solution for managing the available product offering. The product offering GUI windows are organized to be easy to use and operate. It enables multiple pricing and bundling plans.

The product catalogue is maintained on three levels:

**Product Item** – A basic service element that can be billed on an invoice. Product items can be equipment, resources, one-time and recurrent services, voice mail, adjustments, penalties etc. Some examples of product items are: mobile phones, SIM cards, monthly fees, maintenance charges, etc. Prices are assigned to each product item and controlled by a tariff plan.

**Tariff Plan** – A list of prices for each product item. Product items can be assigned different prices according to different tariff plans. For example: it is possible to define a Standard Tariff Plan for new customers and a Business Tariff Plan for business customers. A tariff plan can contain prices for all of the product items offered to the customer or a subset of product items. A customer can have a number of tariff plans. During bill generation, business rules are used to define which price is billed when a customer has several tariff plans.

**Rate Plan** –Rate plans determine the price charged for customer usage. Rate plans are determined using the rating engine management module. Rate plans are imported from the rating engine into InfraCare Admin.

Product items and tariff plans can be linked to a service package.

**Service Package** – The main contract between customer and provider. The service package consists of one tariff plan and a list of product items offered to the customer. The price for each product item is determined by the tariff plan associated with the service package. If no price is defined for a product item within a specific tariff plan, the price will be taken from the standard tariff plan



**Figure 1: Service Package Structure**

The same product item can be charged differently because the customer has a different tariff plan. The diagram below shows two customers that have the same services (a service is a type of product item), the customer on the left will pay less because he has the introductory tariff plan.

InfraCare Admin Tariff Plans Example

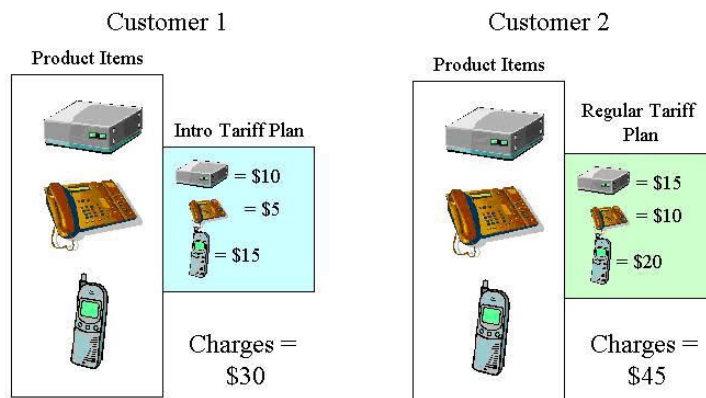


Figure 2: Tariff Plan

### 2.1.1 PRODUCT ITEM MANAGEMENT

Product items are the basic products and services that are provided to customers. Product items have a Type, Category and Product.

Item Type is used to differentiate between the functions of each product item. Product items can be of different types, some examples of different Types appear below:

- **Equipment** – Serialized equipment and sales
- **One-time services** – Services that are not recurring, Such as a startup or disconnection fee.
- **Recurring services** – Services that are recurrently debited, i.e. monthly fees.
- **Provision** – Different types of provisioning activities. Each of these activities may have an associated cost such as Connection fee, Reconnection fee, and Disconnection fee.
- **Resources** – Resources maintained in the system such as telephone numbers, SIM cards, ISDN numbers. Each of these types of items can be sold in the same way as equipment items are sold.
- **Discounts** – Some discounts are configured as product items.
- **Rating Feature** – Features (i.e. voice or data) that are used to rate the Usage Detail Records (UDRs) that are fed into the system. A feature can also be a product, some examples of features that can be marketed as products are: QoS, Operator Assisted, etc.
- **Rating Detail** – Items listed in the invoice. When rates are defined, they are associated with one of these rating items. Therefore, when the UDR is rated and inserted into the invoice, the system recognizes which item should be associated with the charge.

- **Rate Plan** – Rate Plan items transferred from the rating engine. The system will use these items assigned to customers to determine which rate plan is used to rate the incoming UDRs.
- **System** – Item types such as Tax that are predefined in the system.

Item category is used to differentiate between items according to user preferences. Additional categories can be added for more precise filtering of product items.

Item product enables each product item to be defined as either a “generic” product available for all products, or a specific product-based item. Items can be products such as Telephony, Pager, Internet, and IP phone.

All product items can be managed from the InfraCare Admin GUI. In addition product items can be for a limited period. It is possible to apply a start and end date that limit the availability of the product item.

### 2.1.2 ITEM TARIFFS

Different prices defined for a product item in tariff plans are easily managed. Prices can be added and edited for product items. It is possible to produce reports that show lists of the different product items.

For more information about tariff plans, see **Tariff Plan Management**.

### 2.1.3 TARIFF PLAN MANAGEMENT

A Tariff Plan is an inventory of prices for each defined product item. Product items can be assigned different prices in different tariff plans. See the example above in Section 2.1, **Product** .

After product items and tariff plans are defined, prices in different currencies can then be assigned to each relevant combination of item and tariff plan.

Prices can be defined in different currencies for each product item in a tariff plan. The prices for a tariff plan item can be modified. The old price is kept as history.

It is possible to print out reports detailing different prices and items in tariff plans.

### 2.1.4 SERVICE PACKAGE MANAGEMENT

Service packages are the main contract between customer and service provider. Service packages consist of one or more services and may include a proportional plan that provides incentives to encourage customers to purchase the package with a specified time period. A service package may also contain different sets of rate plans and optional components that are part of the contract terms.

A service package can be assigned to a resource or a task. For more information about resources and tasks, see **Resource Management** and **Workflow Management**.

It is possible to add new service packages and edit, delete or terminate (disable as of a specified date) existing service packages. In addition, existing service packages can be cloned, or copied to easily create a new service package.

Product items and tariff plans can be added to a service package. Only one tariff plan can be assigned to each service package. The link between a service package and a tariff plan or product items can be edited, terminated or deleted.

## 2.2 RESOURCE MANAGEMENT

InfraCare Admin provides an easy and efficient way of managing resources. A resource is any logical or physical entity that is provided to the customer and is used to rate and process usage. A resource is a building block of a product. For the example, for the product Telephony, a resource can be a cellular phone or telephone number. For the product Internet, a resource can be an IP address or user name.

The inventory can include various types of resource items, the location of each occurrence of the resource item and other inventory-related information such as date of purchase and serial number. Resource items can be:

- CTN, ISDN phone numbers
- MSISDN numbers
- SIM cards, cellular handsets
- Calling cards
- Domain user names, domain names and addresses
- TCP/IP addresses
- Portable phone numbers

Resources are easily managed using the GUI. Business rules make sure that resources can only be disconnected or suspended if the resource item is in use and can only be deleted from the system if it is.

### 2.2.1 VIEWING RESOURCE ITEM HISTORY

It is possible to view the history of a selected resource item. The following information is displayed:

- Customer ID and name
- Location of the resource
- Status of the resource (free or active)
- Start/End Date (the time period during which the resource was active)

## 2.3 SYSTEM ADMINISTRATION

InfraCare Admin allows the administrator to configure certain features and settings required for maintaining the system. These include defining billing cycles and tax groups; creating shortcut icons and linking; establishing relationships between customers, such as “pays for”; and so on.

### 2.3.1 BILL CYCLES MANAGEMENT

A billing cycle is the period for which a customer receives an invoice. The system supports periodic billing cycles, with flexible frequencies according to customer needs. In addition, bills can be attributed to customers out of the billing cycle since the system supports hot billing and pro-ration of fixed fee services.

It is possible to create invoices at different times within the bill cycle based on customer preferences. Different bill cycles can be used for different products. Different bill cycles can be used for the same product (i.e. Some wireline customers can belong to a bill cycle that bills on the 15<sup>th</sup> of the month and others to a bill cycle that bills on the 31<sup>st</sup> of the month).

New billing cycles can be added and existing cycles edited or deleted.

### 2.3.2 GENERATION HISTORY

Invoicing includes a monthly generation process that creates an invoice for each customer in a billing cycle.

The Generation History option in InfraCare Admin provides the ability to view the generation history of billing cycles. The information displayed for each generation includes:

- **Bill Date** – The date when the bill was generated
- **Run Date** – Generation date
- **Bill Due Date** – Number of days from the run date to the last payment date
- **Customer Done** – Number of customers who were invoiced in this billing cycle
- **Customer Total** – Total number of customers assigned to this cycle. The Customer Total should equal the Customer Done, otherwise, a problem occurred during the generation.
- **Status Text** – Status of the generation: Done (the generation succeeded) or Cancelled (the generation was undone)

### 2.3.3 TAX GROUP MANAGEMENT

Tax calculation processes are integrated in each of the activities in which payment of tax is required.

Taxes are part of the database; they are not hard-coded in the system, thereby allowing greater flexibility. The system can support multiple tax plans; each customer can have any available tax plan. The system supports multiple tax plans that can be attributed to customers receiving services in different countries; the tax plan will compute the taxes in the customer invoices.

Taxes are calculated according to the following principles:

- **Charges** - Tax is calculated whenever a charge is created at the individual charge level.
- **Installments** – Tax is calculated at the time that an installment is created and not when it is collected. This means that tax is applied at purchase time rather than at collection time. Each installment contains its own amount.
- **Re-rating during roaming** – Tax is re-calculated when an extracted roaming message is re-rated.
- **Roaming outcollects** – Tax is calculated at the time that a roaming message is extracted outside the system to other service providers during the CIBER conversation process.

- **Adjustments and refunds** – A tax refund is calculated when an adjustment is created.

It is possible to add a new tax plan, and edit or delete an existing tax.

#### **2.3.4 LETTER MANAGEMENT**

Letters can easily be generated using the Letter Management option. This option facilitates communication between the service provider and its customers.

Letters can be used for different purposes, for example, welcome letters, reminders of unpaid invoices, etc.

The system comes with pre-defined letter templates that are customized during the product implementation. Letter templates are available for different letter types. Each letter template includes text and variables. The text is printed according to the design of the template and the way it was defined. During the production of actual letters variables are replaced automatically with specified customer information such as customer name, customer address, etc.

Letter Management supports the following principles:

- Letter templates are user-defined.
- New letter templates can be added at any time.
- Special printing attributes are supported.
- Letters can include specified account details and other system-generated information.
- Full letter history is stored for future reference.

Letter production can be scheduled to run periodically or upon request.

It is possible to add a new letter, or edit, clone (copy), delete or terminate (make unavailable as of a specified date) an existing letter.

#### **2.3.5 INTRANET HELP MANAGEMENT**

The Intranet Help option is used to set up links to any given help file located in the program files folder. HTML help files can be created for the different objects of the database (tables, table records) or interface modules.

It is possible to add a new help topic link, and edit, browse or delete existing help topic links.

#### **2.3.6 PARAMETER MANAGEMENT**

System parameters are managed in InfraCare Admin. System parameters are used for various system settings, such as invoice threshold amounts, default directories, hot bill settings. It is possible to add a new parameter, edit a parameter or view a parameter's history.

## **2.3.7 SECURITY**

The User Interface Security Mechanism (UISM) allows the InfraCare administrator to manage and control access to the user interface. The administrator can set up a hierarchy of different user permission levels. This enables the administrator to securely define users and user groups (called User Profiles), as well as create new users in the database.

### **2.3.7.1 User Management**

New users are added to the system by assigning a user name and encrypted password. A user must be assigned to a User Profile.

New users can be added and existing users edited or deleted.

### **2.3.7.2 User Profile Management**

A User Profile is a group of users who are assigned the same permissions. If changes are made to the permissions of a User Profile, the changes affect all users within that profile.

For example, it is possible to define a group called A/R CSR and assign all A/R CSRs to the group. All users who are a part of this group will be allowed to perform the same operations.

It is possible to add, edit and delete User Profiles.

### **2.3.7.3 Assigning Permissions to Users/User Profiles**

The security mechanism provides the framework to enable or disable specific InfraCare functions and windows for individual users or groups of users.

It is possible to change permissions for a specific user. Later on the user, whose permissions were changed individually, can be restored to the original settings from the user's profile.

## **2.4 CUSTOMIZATION MANAGEMENT**

InfraCare Admin provides the building blocks for customer customization. InfraCare Admin provides the ability to configure customized workflows, relations, and properties. Workflows, relations, and properties allow the system to quickly and easily adapt to changing conditions in dynamic market.

### **2.4.1 WORKFLOW MANAGEMENT**

The system has a built in workflow management mechanism. The workflow mechanism is a set of pre-defined tasks and business rules that manage events in the customer lifecycle to increase productivity and reduce manpower.

Among other processes, the workflow management system enables automatic provisioning, collections, order management, resource management, and trouble ticketing. Tasks are the building blocks of the workflow system. A task represents an action or event. All tasks have commands, reasons, and results. Tasks with the same set of commands, reasons, and results are organized in queues of the same queue type. Each process (such as provisioning, trouble ticketing, order management, etc.) has its own queue type that contains commands, reasons, and results relevant to that process. The diagram below shows two different queue types and tasks that may exist in those queues.



**Figure 3: Workflow Management**

The base for every workflow mechanism is some real process in a company that needs to be identified and implemented.

Tasks are monitored by queue agents and can be rerouted to different queues, escalated for management intervention or changed according to company priorities.

**2.4.1.1 Queue Definition**

The Task Queue option is used to monitor and schedule tasks. Tasks are defined according to three concepts:

- **Queue** – The system groups task details into queues. Each queue defines a specific activity, either physical or logical, such switch provisioning, printing on a specified device, collection activities, e-mail transactions, etc.
- **Commands** – Commands are specific actions that can be defined for a queue. Examples of provisioning commands are connection, disconnection, reconnection and termination. An example of letter queue commands for a specific printer is a letter that may be printed or sent to a customer or a subscriber.

- **Type** – Queues are grouped according to types of tasks that have the same possible commands. For example, different printers have a separate queue but share the same set of commands. Examples of queue types are Collection, Provision, Customer Care and Technical.

New queues can be defined and added to the system. It is also possible to edit and delete existing queues.

#### **2.4.1.2 Queue Type Management**

In addition to managing queue definitions, it is also possible to add, edit and delete queue types.

The following attributes are defined for each queue type:

- **Commands** – Commands for the queue type
- **Reasons** – Reasons for performing the commands
- **Results** – Possible results of performing the commands

#### **2.4.2 RELATIONS MANAGEMENT**

Many different objects are stored by the system. In the system, these objects are called Entities. Customers, Items, Invoices, Resources, and Tasks are all examples of entities in the system.

Relations are custom-defined links in the system. Relations are used to link different entities in the system and to create multi-level hierarchies. Hierarchies can be created to link the same entities or different entities.

Some possible uses of relations are

- **Invoicing Information** - Can link related customer/department that pay jointly
- **Corporate Hierarchies** - Can show relationships between corporate customers (subsidiaries, departments, etc.)
- **Customer Premises Equipment** - Can link related equipment
- **Network Information** - Can keep track of network structure
- **Commissions** - Can store agent and commissions information

Relations can be defined as one-to-one (for example, a paying customer to a non-paying customer) or one-to-many (for example, a dealer to a group of customers).

Relations created in InfraCare Admin are available for CSRs to use from the InfraCare GUI.

InfraCare Admin provides the ability to add new relations categories and types, existing categories and types can be edited or deleted.

Constraints can also be defined for an entity relation. A constraint is a limitation placed on an entity relation. For example, a provider might need to set up certain limitations for a “pay-for” relationship between two customers where the paying customer is the parent and the non-paying customer is the child. They might want the paying customer to have Status “Active” and Type “Private” and the non-paying customer to have Status “Potential”.

### 2.4.3 PROPERTIES MANAGEMENT

Properties can be defined for each of the system entities. See **Relations Management** for more information about entities.

Properties are custom defined fields. Properties are used to store customer specific information. Information regarding marketing aspects of the customer as well as other demographic or usage profile information can be stored as properties. For example, the customer's birthday or marital status can be added to the database. The diagram below shows how properties add information to a customer:

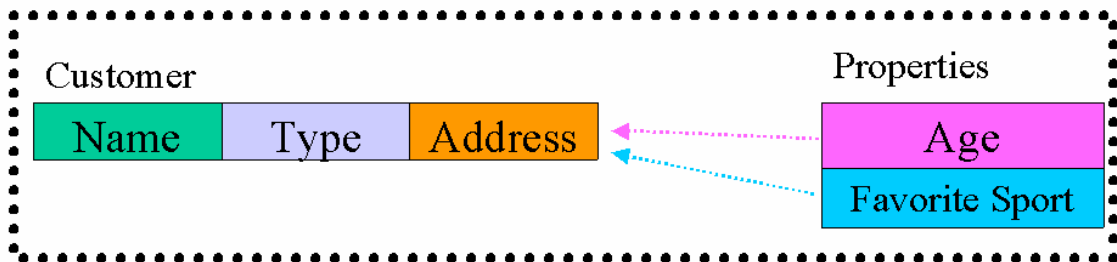


Figure 4: Properties

In addition, properties can be used to define any calculation or other unique information regarding a particular customer. For example, a property can be set to calculate each time the customer receives an adjustment.

Properties can store different types of values: text, integer, long integer, Boolean, etc.

It is possible to limit each property with constraints. For example, a provider might want to make a specific billing property only available to customers with Active status.

InfraCare Admin provides the tools to manage the different properties available in the system.

### 2.4.4 SHORTCUT MANAGEMENT

A shortcut is a button on a toolbar that allows user to perform certain actions or takes users to a particular window. The administrator, or any other user, may decide to add icons to the windows at his or her workstation. For example, a Customer Service representative might like a Welcome Letter icon added to the Select Customer window.

The process of creating a shortcut consists of two steps. First, the action for the shortcut is defined and an icon is selected for it. Next, the shortcut is linked to a window. The icon chosen will appear on the window and perform the action defined for it.

InfraCare Admin has the ability to manage which shortcuts are available different users using the system.

### **2.4.5 TABLES MANAGEMENT**

The Tables Management option is used to manage the system tables. It is possible to:

- Add a value to Lookup tables
- Delete a value from Lookup tables
- View and print the contents of a selected table
- View and print the contents of all the tables

All lookups support multiple languages.

### **2.5 CURRENCY EXCHANGE RATE MANAGEMENT**

The system supports multiple currencies. Each currency can be defined with different types of rates, for example, representative, buy, sell, check, etc. These can be used in calculations for the different processes of transferring information from one rate to another.

Exchange rate history is stored in the system. Additional currencies can be added on the fly.

### **2.6 MULTILINGUAL TRANSLATION MANAGEMENT**

InfraCare Admin supports multi-language environments. The user interface can be switched between various languages, allowing access to all information in the customer's preferred language. For example users that speak English can view the GUI in English and users that speak Spanish can view it in Spanish.

### **3. INFRACARE**

InfraCare delivers customer care, order management, and workflows in a user-friendly, customer-centric environment providing the tools to maintain pro-active and personalized customer relationships. InfraCare uses a state-of-the-art workflow mechanism to support customer processes

InfraCare's advanced functionality helps providers achieve service and revenue assurance, enhance customer satisfaction, reduce customer churn and realize greater profitability.

Customer-oriented functions are supported and customer data is maintained in InfraCare. This document describes many of the features and functions that are available in the InfraCare application.

#### **3.1 CUSTOMER INITIATION**

The InfraCare system is designed with an easy-to-use GUI created to optimize the collection and input of customer information. The system supports different types of customers such as regular customers, potential customers, non-usage customers, service providers, agents and dealers. Each type of customer has its own set of business rules that will govern the functionality that will be attributed to that customer.

Flexible customer profiling and segmenting help launch smart, targeted marketing campaigns. Customer Service Representatives (CSRs) can pro-actively obtain and integrate customer feedback, providing the information to offer customers better services and more focused products, enhancing customer communication and satisfaction.

##### **3.1.1 DATA CHECKS**

Upon entry of the customer data (name/address/social security number), automatic checks are performed on the database for duplicates.

The customer can determine passwords to be used for account access.

##### **3.1.2 DATE FIELDS**

While entering a customer, a future due date can be assigned with automatic order provisioning on the due date. The system always maintains a separate Order Creation date. It can also support Contract Date functionality with automatic penalties. The account history includes the dates of all service changes.

Service can be pro-rated based on install date. The customer can be assigned to the bill cycle closest to the activation date.

##### **3.1.3 PROFILING AND SEGMENTING**

The customer fields can be customized and already include many options, including account type, contact name, credit information, distribution code, due date or install date, billing records, payment information and more. The systems' capabilities include advanced profiling and segmenting based on the customer information and history.

## **3.2 CUSTOMER CARE**

The system supports the definition of multiple relationships between customers. Multiple relations can define different aspects of customer hierarchy. Relationships such as “Pays For”, “Organizational Child Of”, “Reports to” allow the system a wide range of capabilities in defining the interaction between different customers. These relations can be taken into account in the business rules of the system, for example in computing discounts.

### **3.2.1 HIERARCHIES**

The Customer Care and Billing module supports multilevel and multi-parallel hierarchies. One or more levels can be utilized depending on the customer requirements. Some of the common hierarchies include:

- Product or feature level
- Line or access level
- Account level
- Department level
- Corporate level
- Market level
- State level

### **3.2.2 CUSTOMER GROUPINGS**

Accounts can be grouped together for billing, discounting and/or analyzing profitability. Multiple services can be combined on one account, for example local service, high-speed data, Internet and long distance.

### **3.2.3 ACCOUNT NUMBERS**

Account numbers can be automatically assigned by the system in numerical or any other sequential order and are unique to each customer. The account numbers are not recycled and are independent of the resource identifier, i.e. telephone number, Internet address.

### **3.2.4 CREDIT**

The system can perform automatic credit checks and scores, either internally or via third-party interface with credit bureau(s) and scoring systems. Credit checks may be determined by account type and are stored on the account level. Credit can also be validated for existing customers adding services or making adjustments.

## **3.3 CUSTOMER REQUESTS AND COMPLAINTS**

Historical information (described in the History Recording and Maintenance subsection) can be accessed online by the customer care agent to handle requests and complaints in a timely manner.

Tasks to be performed for the customer can be generated automatically or manually in accordance with customer requests.

Letters to the customer can easily be retrieved for online reference.

### **3.4 CUSTOMER HISTORICAL RECORDS**

History is maintained for the following areas:

- Invoices
- Payments
- Deposits
- Letters
- Configuration
- Services

### **3.5 PARTNER AND RESELLER MANAGEMENT**

InfraCare manages the complex network of relations with business partners, such as resellers and dealers, virtual service providers, application service providers and network providers. InfraCare's customer-centric model simplifies partner, reseller and third-party billing, compensation, and reconciliation. Treating each partner as an individual customer enables efficient management of those increasingly important incollects and outcollects.

#### **3.5.1 WHOLESALE ACCOUNTS**

Wholesale accounts are fully supported. Wholesale accounts are accessible via security login.

#### **3.5.2 PARTNER RELATIONSHIPS**

Complex partner relationships are supported for third-party carriers, content providers, etc.

### **3.6 PRODUCT AND RESOURCE MANAGEMENT**

InfraCare provides the ability to effectively manage a convergent product and service catalog. The service-neutral system supports wireless, wireline, IP, video, utilities and value-added services. InfraCare can provision customers' services to any network device, switch, mediation software or gateway.

Resource Management facilitates the management of inventory of different kinds of numbers, including telephone numbers, pager numbers, user IDs, handsets, SIM Cards, MSISDN, MSN, IP addresses and more.

Resource Management maintains a record of the changes in a resource item throughout its lifecycle, from the point at which the resource (for example, CTN) is loaded into Resource Management as unassigned throughout the various statuses that the resource may undergo.

#### **3.6.1 SERVICES**

This functional attribute defines the current and past services that are offered to the customer. These services may include different types of entities:

- Services that need to be provisioned defining aspects of the product
- Recurring services that need to be charged at a regular basis
- Discounts and promotions that must be computed in the monthly bill
- Activators; services that perform various functions (e.g. upon termination of customer, checking that the customer fulfilled his contractual obligations)

### **3.6.2 CONFIGURATION**

This functional attribute allows update and change of the current and past resources that are allocated to the customer. Resources are serialized equipment and entities needed to provision usage on the network, for example:

- Phone Numbers (CTN/MSISDN/ISDN)
- Hand Sets
- SIM cards
- User Names (Internet)
- Pin Codes

### **3.6.3 SERVICE PACKAGES**

This functional attribute maintains the history of the service packages that were attributed to the customer. A service package is an entity that defines a group of services and tariff rates for those services. If a service plan is changed, it can be set to start at a future date/time.

### **3.6.4 MULTIPLE SERVICE PACKAGES PER CUSTOMER**

Multiple service packages can be defined for a customer.

### **3.6.5 PROVISIONING**

Provisioning commands such as connect/disconnect can be defined. The workflow mechanism can be customized to perform provisioning tasks automatically.

### **3.6.6 ASSIGNING RESOURCES**

While activating accounts, CSRs have the ability to view, select and assign telephone numbers from the number inventory.

An account can have multiple services, resources (i.e. telephone numbers), etc.

ISP customers can be assigned unique email addresses.

The system offers the option to define number pools, i.e. one large or multiple pools.

### **3.6.7 RESOURCE INVENTORY MANAGEMENT**

The resource inventory can be categorized as follows:

- Available
- Assigned

- Reserved
- Unavailable
- Retired

The system will not allow the same number to be assigned twice. Each number is unique. InfraCare also provides triggers and reports when resource inventory levels are at reorder threshold.

It has the ability to pull remote units from inventory and assign them to a customer (in the case of a fixed wireless scenario).

### **3.6.8 RESOURCE AND NUMBER SELECTION**

Resources and numbers can be assigned by default; or the CSR can search for a customer-requested resource and assign it. The system also provides the option to charge for customer-selected resources and numbers and gives the rep the ability to override the default.

Resources and numbers can be reserved by a CSR within the system for a specified period of time.

The system can support user-defined waiting periods before reloading resources and numbers into available status.

During activation, the system automatically suggests appropriate NPA NXX based on customer's service address

### **3.6.9 CHANGES IN NUMBERS**

The system can support resource or number portability and provides a comprehensive, historical audit trail for numbers.

When changing resources or phone numbers on an active account, all account history can follow the change.

The Resource Management module covers the following functional areas:

- Ability to reserve numbers for dealers, roaming companies, etc. These numbers cannot be accessed by the number selection application.
- Generation and input of new resources such as PIN codes, SIM Cards, handsets, phone numbers are managed with the ability to specify special generation functions that will allow product-based functionality based on the users mode of operation.
- Each resource item (handset, SIM card) may be attributed different properties such as ESN, frequency, version, date of receipt and other information defined in the administration module.
- History of each resource customer assignment, marketing status and location are maintained in the system.
- Automatic assignments are supported, however CC reps can select customers telephone numbers by pattern (e.g., first three digits 576).
- Aging is managed in two modes: business and residential. Each mode is defined by the number of days that the resource or number must be kept in quarantine.

- Reports and queries on current levels and availability (location, marketing status) of stock levels.

### **3.6.10 COMPLEX RESOURCE AND SERVICE HIERARCHIES**

InfraCare supports complex hierarchies of resources and services, this allows for maximum flexibility regarding in product and service definition.

## **3.7 TAXATION**

The system can update tax according to change of address and supports Vertex or other equivalent taxation software and overlapping tax authorities. The associated tax ID is automatically assigned when the zip code is entered. The taxation can be based on the billing or service address.

Taxes are automatically calculated on adjustments by considering tax jurisdiction of specific adjustment code and tax jurisdiction of account level.

The system also supports tax exemption status for customer accounts and associated fields, for example, expiration notification.

The applicable tax rules are referenced for the country/state that the Customer account relates to or where the circuit either originates or terminates. They are also applied according to what is specified in the customer contract.

Tax may not apply to all parts of the invoice and different (and multiple) rates may apply to each billing element. Where complex tax issues arise, for example where tax is due on the length of cable in territorial waters, then two billing elements are expected (one to which tax applies, and one not subject to tax) and will have to be entered as part of the service creation.

### **3.7.1 CALCULATING TAXES FOR SERVICES**

During the invoice generation process, the invoicing module finds the customers' services, calculates the charge for each service and sends the charge to a customer-specific tax function depending on the customer tax plan. These taxes will be added to the database and subsequently included on the customer invoice.

Services and products can be classified for tax purposes. The system can map its services and products according to specific tax dependant classifications so that the system will know how to calculate taxes for the services offered by the service provider.

### **3.7.2 AUDITING**

Taxes for services are calculated based on the type of service. However, on the invoice detail, the tax for services is aggregated. For audit purposes, the system keeps a log in the Relation table of every tax amount attached to every detail that was taxed. These tax specifics are transferred to the G/L in journal logs that are tax specific entries.

### **3.7.3 EXEMPTIONS**

The system supports tax exemptions on various levels. A customer might be exempt from a specific tax level, such as charitable organizations that do not pay state taxes. Alternatively, customers might be exempt from a specific tax, such as sales tax. In addition, the system can declare a customer type that is completely exempt from taxes.

The default in the system is “No Exemptions.” If a customer is tax exempt, the CSR must define the exemption in the customer’s Properties Attribute, ExemptType Property.

### **3.7.4 JURISDICTIONAL LEVEL EXEMPTION**

The system also has the ability to exempt a customer on a jurisdictional level – federal, state, county, local – or any combination of the above, including exempt from all taxes.

### **3.7.5 SPECIFIC TAX EXEMPTION**

Sometimes a customer is not exempt from an entire level of taxes, but from a specific tax, for example sales tax. The system provides the functionality to handle these specific exemptions.

### **3.7.6 COMPLETE EXEMPTION**

The service provider can declare that a certain customer type is completely exempt from taxes. If this is the case, the system can map that information internally.

### **3.7.7 REFUNDING TAXES**

The system has the ability to refund taxes when refunding money to a customer. For example, when an adjustment is made, the system can refund part or all of the taxes paid.

## **3.8 BILL CYCLES**

Bill cycles are used to group customers that are invoiced on the same date and period. InfraCare supports multiple bill cycles.

### **3.8.1 BILLING CUT-OFFS**

Billing cut-offs only effect the cycle that is being extracted. These are typically according to market. The cycle runs can be performed at night, and not interfere with daily operations.

CSRs can access the online system for queries. Updates can also be performed after the cut-off and during the cycle run. There is no downtime during the cycle run.

The system is date sensitive. During the cut-off, the process identifies and extracts billable activity dated during the current cycle.

### **3.8.2 CYCLE FUNCTIONALITY**

The system provides load balancing of all cycles.

At the time of account creation, the system automatically places customers on the closest cycle to customer activation date. The system also enables override of the default cycle by the CSR.

Multiple cycle runs per day are supported with the ability to run cycles and still provide system to customer care for updates.

### **3.8.3 CYCLE CHANGES**

The bill cycle assigned to a customer can be changed and the system automatically prorates and refunds accordingly.

Cycle changes appear on the customer bill for explanation of pro-rations.

Where promotions, package minutes, discounts or bonus minutes are applicable, the history is carried over during a cycle change. All account history follows account after cycle change.

The system will generate a Memo on the account for the cycle change.

### **3.8.4 MULTIPLE MARKET CYCLES**

The system synchronizes cycles across multiple lines of business for customers with local service, Internet service and long distance.

Multi-market account billing, where accounts may cross multiple markets, is supported.

### **3.8.5 HOT BILL CAPABILITIES**

The system provides the capability to produce hot bills at any point in the billing cycle. CSRs can immediately produce a bill covering the period from the latest generated invoice through all current usage and charges. This is possible with one click of a button on the GUI.

## **3.9 PAYMENT PROCESSING**

The Payment Handling module is designed to meet Carrier payment requirements. The module handles direct debit, credit card and multi-currency cash payments. The system interfaces with flat files that interchange information with banks and credit card companies. The system also provides functionality for treasury and bank transaction tables for correlation and confirmation of payments

The system initiates and manages the collection process and has the ability to accept the following types of customer payments:

- Check
- Cash
- Credit Card
- Electronic Funds Transfer
- ACH
- Direct Debit
- Payments over the Internet

- Payments via phone
- Lock Boxes
- Security Deposits/Refunds
- Partial payments in any form

### 3.9.1 EXAMPLES OF PAYMENT RECEIPT

- Cash: numerous cashier sessions can be opened simultaneously for cash collection. Payment of single or multiple invoices can be made in more than one currency. The module supports online viewing of cash flow in the Cashier module and supports the extraction and insertion of cash from the Cashier module for bank deposits and withdrawals.
- Direct debit: automatic debiting of customers through credit card companies and banks is supported through the creation of flat files in ASCII format. During the payment process, the module generates a receipt for each invoice. The invoice is changed from Open status to Covered status.

Rejected payments from the credit card companies and banks can be backed out. The system can perform online, lockbox reconciliation reporting to investigate errors in posting to the lockbox.

### 3.9.2 APPLICATION TO INVOICE

- Changes invoice status to Covered during the Payment Handling process.

Maintains linkage information – when the receipt is created, it is associated with one or more invoices.

- Deposit management is handled separately – payments for deposits are paid through invoices and receipts but are collected separately in a table that manages customer deposits.

### 3.9.3 PAYMENT TRACKING

Searches for payments can be performed based on the invoice or the bill cycle. Unapplied payments can be tracked through the system and deposited to the appropriate general ledger account. If ever identified, they can be moved over to the correct account.

### 3.9.4 PAYMENT POSTINGS

Payment postings can be performed in real time or in a batch that is user identified. Payments can be classified by type, for example bill payment, advance payment, or security deposit.

When payments being posted are not equal to the amount owed, the system provides a warning message to identify possible misapplied payments. The system also supports split receivables.

### 3.9.5 TREASURY SUPPORT

- Unidentified payments are handled through a special application that manages the incoming bank transactions. Payments can then be applied manually to the paying customer
- Payment reversals can be performed to disassociate payments with receipts and then reverse the receipt status to Open.
- Transfer of funds can be performed between customers by reversing and re-associating payments.

### 3.9.6 AGING

The system provides payment history within the following aging buckets in the Customer Care and Billing System:

- Current
- 0-30
- 31-60
- 61-90
- 90+

## 3.10 COLLECTIONS (OPTIONAL PACKAGE)

The Collection package supports the collection activities of the carrier. By automating the administration of the collection effort, The Collection package can provide significant support to the collection of outstanding debts. It ensures that overdue customers are promptly notified, that delinquents are handled according to a defined priority and that no delinquents are ignored because of errors in a paper-based system.

The collection support is managed through the use of tasks, which are defined for collection queues. The collection queues are easy to maintain. Progress on the Collection activities can be reported online.

The Collection module includes tools for the Collection supervisor to perform the following functions:

Generates collection queue lists: the supervisor can use predetermined rules to create collection lists that append to queues. These collection lists form the basis for the tracking of customers that have outstanding debts, including unbilled usage or billed, overdue debts.

- Tracks progress of collection list handling: enabled through the use of standard reporting tools.
- Creates collection lists: the supervisor can use pre-created lists for reporting purposes, thus enabling him/her to create reports (electronic or hard-copy) for distribution among internal and external functions (i.e., collection agencies).

The Collection rep performs the following functions:

- Collection reps work collection activities associated with customers according to a specified collection queue list. The queue contains a list of accounts that have debts to be collected or must be contacted.
- Collection activities can be viewed on the customer and activity levels.
- Task functionality allows scrolling to the next customer in a queue when selecting a specific (collection) queue. Tasks may be created automatically or manually using the queues. A rep can transfer a task or request assistance for a collection task. A task that may entail special handling can also be escalated to a pre-defined Collection Manager Queue.
- Letters may be sent at any time either automatically in batch mode or manually by the collection team.

### **3.10.1 COLLECTION CRITERIA**

Accounts enter the collection process when:

- An account balance exceeds the established credit limit
- A balance remains unpaid past one billing cycle

Accounts are removed from the collection process when:

- Balance is paid in full
- A promise to pay has been met

### **3.10.2 TREATMENT CODES**

Treatment codes are automatically assigned to accounts based on credit score and credit history.

The system has the ability to tie credit class and customer type to a treatment code and can define different treatment paths to a treatment code.

Dunning letters and notices are supported within the system with interfaces to Customer Communications System for mailing the letter or notice.

System integrates to a predictive dialer.

### **3.10.3 COLLECTION PLANS**

The system can develop an unlimited amount of collection plans using components such as length of time past due, dollar amount past due, and define the timings for:

- Direct customer contacts
- Letter types
- Suspending services
- Negotiating a payment plan
- Applying a security deposit
- Disconnecting
- Write-offs

### **3.10.4 WORK QUEUES**

The system provides the ability to assign work queues to collection reps, prioritized according to:

- Outstanding balance
- Oldest balance
- Largest balance

Work queues can be reassigned.

### **3.10.5 CUSTOMER CARE HISTORY**

The system provides collection activity Memo notes to the Customer Care History and provides the ability for the CSR to view collection activity.

Payment history patterns automatically adjust the credit class of the account.

### **3.10.6 PROMISE-TO-PAY**

Promise-to-pay functionality offers individualized collection plans to accommodate promise-to-pay dates or reschedules the treatment (dunning) events based on promise-to-pay dates. Or, it can provide the customer service representative with the ability to manually reschedule events based on promise-to-pay dates.

### **3.10.7 TASK**

Task functionality for due dates and payment commitments are included in the collection module.

### **3.10.8 BAD DEBT**

The collection module provides the ability to suspend, hotline or disconnect the customer from the network or switch. The customer care module shows the status at all times.

A history of write-offs and bankruptcies are provided to verify that new accounts do not have a previous collections history.

Write-offs can be transferred to external collection agencies via tape, diskette, report, etc.

## **3.11 ADJUSTMENTS**

Credits and/or adjustments can be made on individual credits or in batches with separate tables for credit/and or adjustment codes. Pre-determined amounts can be set for CSR discretion or management approval. These limits are configurable and can be enforced based on the user ID.

Credits can be applied in real time, immediately impacting customer balances, with an interface to general ledger, updating appropriate ledger codes. Edits can be made to duplicate credits in the same bill cycle. Full credit and adjustment history is available for CSR view. Credits and adjustments for service-related items are automatically prorated.

### **3.11.1 CREDIT/ADJUSTMENT REPORTS**

Credit/Adjustment reports can be produced according to all the following:

- Credits/Adjustment Code
- CSR
- Department
- Market
- Account
- Date
- Service/Product

### **3.12 TERMINATION OF SERVICE**

- The system can deactivate customers based on the company's business rules and procedures. The deactivation can update all downstream systems.

The following due date options are supported:

- Back Date
- Future Date
- Today's Date

If there is a cancellation charge, the termination function can apply the appropriate charge against the account. The CSR has the option to waive charges.

The account remains in Customer Care and Billing until the final bill is rendered and there is zero balance on account. The deactivation reason code can be input and retained on the customer record.

#### **3.12.1 RECONNECTION**

Reconnection of the account and telephone number from final status to active status is supported with customer telephone numbers quarantined for 90 days.

#### **3.12.2 TASK**

Upon termination, the system creates a Memo that remains open until the rep completes the task.

### **3.13 WORKFLOWS AND CUSTOMER PROCESSES**

Every task, whether initiated automatically within the database or manually by a CSR or manager, is assigned to a specific queue for processing. Tasks are monitored by queue agents and can be rerouted to different queues, escalated for management intervention or changed according to company priorities. Based on company procedures, the queue agents can dispatch information originating from web interfaces or external files, insert that information in the form of a task and validate that the task has been completed. Queue agents help ignore invalid information and reduce errors by allowing manual verification entered data.

Credit checks, multiple complex service activation, automated customer tasks and e-mails can all be supported from a single order request.

The system supports task dependencies and multi-tasking, i.e., tasks can be performed while other tasks are being completed. The system supports relationships between multiple provisioning plans. Task lists can be toggled to other areas of the application.

The system provides the ability to log the completion date and times of each task.

Processing of tasks are supported by the following:

- Reporting of individual performance by associating an individual with a task.
- Tracks late tasks and triggers task.
- Allows auto-completion of tasks.

### **3.13.1 WORK ORDER ASSIGNMENT**

The system supports work order assignments:

- Enables creation of predefined task assignments
- Enables modification of assignments at the order level

Assigns tasks to individuals or groups:

- Automatically
- Manually
- Provides an interface that allows the user to track individual assignments

### **3.13.2 PERFORMANCE REPORTS**

The system produces performance reports and creates a Memo in Customer Account of task and responsible party.

### **3.13.3 CREATING TASKS**

Tasks can be created at various levels:

- Account Level
- CSR Level
- Department Level

### **3.13.4 TASK FUNCTIONALITY**

Tasks can be closed or re-assigned to another CSR or department. Tasks contain:

- Date created
- Date due
- Date closed
- Person who created task
- Queue that task is assigned to

- Person who closes task
- Reason code
- Result code
- Priority code
- Space for freeform text

Task messages can pop-up X number of days prior to due date. The number of days is a configurable parameter. One account can have multiple tasks.

### **3.13.5 TASK MONITORING AND REPORTING**

Managers can monitor tasks by:

- Issues
- Queue
- Status

The system includes reporting ability on tasks.

## **3.14 INTERFACES**

The system uses a number of possibilities to interface with external devices and systems. The system employs an open architecture in which client applications manage most external interfaces.

This architecture allows add-on functionalities to be defined, programmed and modified with minimal cost and time, resulting in maximum adaptability.

The system interfaces with the following systems:

- Switch and voice mail systems: provisioning can be carried out by a client application that translates performs and logs logical commands to specific switch commands via serial communications or flat files interface. A mediation device may complete the logical command by performing the physical command and inserting the result code into the customer database for CC rep review.
- Direct Debit and credit card flat files are created for transferring payment data to these companies.
- Bank transactions and payment files can be received for payment and receipt confirmation.
- General ledger files can be created for transfer to an external G/L application.
- Information on sales and change of marketing status of resources is generated in a flat file that can be inputted into an Inventory system allowing updates of sales/rentals/loan of equipment through the system.
- Print files can be created for transferring bill data to external printing facilities for bill printing.

As well as:

- Call Center Platform (ACD/IVR/CTI)
- Credit Scoring and Credit Bureau
- Geocode System
- Network Operations Center
- Switch/Central Office
- Billing
- Directory Assistance Database
- E911 Database
- IXC, or CARE record
- ISP
- Trouble Ticket
- Payment Processing/Lockbox
- Sales Force Automation
- Point of Sale systems
- Customer Communications System
- Marketing Database
- Credit Card Authorization
- Intranet or other internal online handbook.
- Fax Server to send a fax from the desktop

#### **3.14.1 WEB GATEWAY AND INTERFACE**

The Customer Care and Billing modules can also interface with the Autonom-e software platform. This module provides secure Electronic Bill Presentment and Payment, Internet self care, and electronic Customer Service Management.

#### **3.15 MULTILINGUAL TRANSLATION MANAGEMENT**

InfraCare supports multi-language environments. The user interface can be switched between various languages, allowing access to all information in the customer's preferred language. For example CSRs that speak English can view the GUI in English and CSRs that speak Spanish can view it in Spanish.