



“New Generation Billing, Integration & Customer Care Systems”

*Convergent Pre- and Post-paid Billing Solution
Featured for different Services such as GSM, CDMA, Internet, ASP, etc.
The System is for 3G
Adequate WWW and LAN interfaces to the same B2B Application Server,
based on XML tuned Integrating CORBA, EJB or RMI platform.*

Introductory Brochure

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Configuration note. *NGBill*, *NGCustomer*, *NGReal*, *NGStock*, *NGLine*, *NGWorkflow*, *NGConnect*, *NGRoam*, *NGWeb*, *NGDeal*, *NGMediate* & *NGIntegrate* is sold as a series of modules. The descriptions of the product is a general description only. Functionality detailed herein may require extra modules not included in the standard product.

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Executive Summary

Sysdate' vision is one of a networked economy where next-generation business models are enabled by the efficient management of bundled services and value-chain partnerships. Sysdate' believes that creativity and the ability to innovate should not be limited by the capabilities of a billing system. In order to fully enable revenue to flow between multiple parties in a business ecosystem, a departure from restrictive vendor-to-buyer billing models is demanded. Sysdate has developed technology that enables service providers to launch service packages in real time using an intuitive GUI powered by object-based components. The solution is developed entirely in JAVA and XML to liberate service providers from the long implementation times that delay time to market and revenue from value-added services. With technology at least two years ahead of billing industry leaders, Sysdate' componentised object model represents a revolutionary approach in the market offering the Service Provider only those part of the system that he actually needs.

Sysdate team is an experienced provider of leading strategic software products and services for billing and customer management to the telecommunications industry and multi-service companies. Its experienced designers and software engineers have over the past 10 years carried out more than 38 successful installations in 12 countries with our partners Intasys Billing Technologies, Sysdate Australia and ZygoBilling United Kingdom.

The New Generation Systems (**NGS**) product line by Sysdate provides sophisticated 4th generation convergent solutions to enable the billing requirements of our customers. Our solutions, based on the very latest technologies, provide functionality, lower cost of ownership, future proofing and scalability with high level of support and knowledge transfer procedures. Our truly convergent products are featured to utilise THE SAME data for pre- and post paid services Rating Engine.

All our products are modular and designed to be “stand alone” as well as to be integrated with our own or third party system suites.

Let revenue generation drive billing

Revenue generation increasing the ARPU is truly strategic for service providers and should be the driving force behind the billing process. As such, service providers need the flexibility to follow market demands and not being restricted by the rating engine but rather to be able to change price policies and product offerings on the fly.

Service Providers need to have the flexibility to set up complex relationships, such as those that can occur between the various Billing Groups, Charge Plans & Contracts within a global enterprise, where network accounting and charge back models become requirements.

The invoices should reflect the pricing policies that a service provider implements, enabling them to provide convergent bills for all services and product offers, and present detailed invoices online – with real-time status and drill down query capabilities.

Open up new markets

The ability to rate any type of event or combination of events together– not only based on time and distance, but also QoS, peak-hour traffic, number of packets, number of users, bandwidth, or any other parameter, pre-paid or post-paid – allows service providers to enter new markets and segments, otherwise unavailable to them.

Service providers can further penetrate existing markets by implementing various up-selling scenarios, such as new rates based on high-volume usage, tries and promotions, customer

loyalty rewards, etc.

The time to market and time to revenue for new products and price plans are significantly reduced through the seamless loop provided by Sysdate. Any non-technical user can simulate, implement and test price plans with the simple to use GUI tool. The powerful underlying object-based code allows the tested price plans to be implemented in one click, thereby avoiding IT backlogs and time consuming custom integration.

Business Alliances

Hewlett Packard	HP OpenCall IN platform provider for RTBS
ZTE Corporation	Communication equipment and Switch Vendor
Sun Microsystems Inc.	Computer Hardware and Software provider
Oracle Corporation	Database & Applications
HCL Perot	Development & Implementation Partner
S&T Systems	integrator based in Austria with offices in 15 Countries worldwide. www.snt.at
MedComm	Europe and Middle East sales

Sysdate Marketing

We have developed a range of superior billing system products that have an economic model that can be sufficiently cost effective to reach the upper middle convergent telecommunications and data companies that is translated currently into the following languages:

English	Current
Russian	Current
Ukrainian	Current
French	Current
Spanish	2 – 4 weeks
German	2 – 4 weeks
Italian	2 – 4 weeks
Chinese	4 – 6 weeks

The way in which the product has been designed & developed allows for new languages to be catered for very easily. For instance into Spanish or German this would take 2 – 4 weeks to achieve.

Having the specialists speaking Russian, Ukrainian, French, Italian and Spanish enables us to support CIS & European country sites effectively.

NGSystems (New Generation Systems - NGS) Description

The NGS is a family of products collected on one Integrating CORBA/EJB/JAVA platform, united by the same technology, architecture and front-end clients. The flagman product is *NGBill* – Convergent Billing System

The NGSystems Product range

<i>NGBill</i>	-	Retail Billing & CRM System
<i>NGCustomer</i>	-	Customer Care System - CRM
<i>NGReal</i>	-	Real Time Billing System
<i>NGStock</i>	-	Inventory Control System
<i>NGLine</i>	-	Line Plant Management System
<i>NGWorkflow</i>	-	Workflow Management System
<i>NGMediate</i>	-	Mediation & Provisioning System
<i>NGConnect</i>	-	Interconnect Billing System
<i>NGRoam</i>	-	Roaming Management System

- NGWeb* - Self Care Fully functional Web Front End
- NGDeal* - Dealer Fully functional Web Front End
- NGIntegrate* - Integrating System with form, web form and report writers.

The *NGS* Product is a convergent, multi company system, which provides retail, wholesale & interconnect billing and customer care functionality for local exchange, long distance, Internet Cellular, GPRS, & UMTS, voice mail and answering services. *NGS* provides billing functionality for all of these services with a customer care user interface providing access to the information necessary to service a convergent customer consuming all of these services. The modular nature of our billing product ensures your system keeps pace with your company as you grow into new business areas.

At the same time *NGS* is Pre- & Postpaid Convergent Billing System. It has one advanced tariff system for both types of the subscribers. It uses OSA/Parlay interface protocol and the most successful implementation was done on HP OpenCall IN platform.

NGS uses N Tier B2B Architecture designed for today's distributed deployment requirements. The system has been designed to provide the best possible performance for a variety of different sized customers.

The *NGS* is designed to be used with a variety of graphical user interfaces, the initial Internal GUI is written in Java, runs on any Java Compliant platform. Web based front end is for full Internet deployment. There is a domestic script based JavaApplet Front-End solution, similar to one, which was used to develop pervious successful product - Jbill (with Intasys Billing Technologies). All interfaces access the same business logic on Application Server. The application server layer is Java, Corba & EJB compliant. The application server layer can be deployed using VisiBroker, Borland Web server or WebLogic.

The system is scalable from running application server and database tiers on the smallest UNIX or Windows server and the user interface on multiple attached Java Stations or PCs. To running the database & application on multiple different distributed servers, with as many clients as required. The use of Java allows for rapid deployment of enhancements, customisation and easy connectivity as well as use of the new network computers (JavaStations), which significantly reduces the cost per customer service workstation.

Our systems are both flexible and modular, that is, our architecture permits the addition or modification of various functions, allowing telecommunications providers to meet their unique system requirements. They are also scalable, that is, they are designed to cost-effectively increase capacity in step with a client's subscriber growth from as little as a few thousand subscribers to upwards of five million.

The business logic is positioned on Application tier, thus the system is flexible from point of view of Data storage. The recommended database to use is an Oracle database, with all executable code written in Java Stored Procedures, making it portable to any UNIX or Windows platform.

Oracle is a key partner in our ongoing development of *NGS*. In the telecommunications industry Oracle is the most popular database used with nearly eight times more installations than other providers.

For integration with any external systems on any level it is recommended to use another Sysdate' product - *NGIntegrate*.

NGS Complete Pricing

Sysdate has created a price matrix that allows the customer to price a complete system including License, Implementation & support based on easily configurable parameters. (See Modularity Below)

Sysdate Licensed Software Components
Standard Implementation Services
Standard Support & Services

There are three items that cannot be calculated exactly except for the actual final requirements situation. These are as follows:-

3rd Party Software Components
Hardware Components (Exact Hardware & Storage required by the Customer)
Customisation Services (Individual Customer Requirement)

An Initial scoping study with the customer would normally be carried prior to the contract being signed to ensure that the requirements of the customer were confirmed. Any variations would then be made by mutual agreement.

3rd Party Software Components

The NGSystems is an open system in so far as it can work with a number of Middle Tier platforms like Oracle Application, Borland VisiBroker, & BEA WebLogic.

Oracle is recommended to be used for the database being the preeminent database used in the telecommunications business. Usually the latest versions are used currently 9i.

Hardware Components

We can also supply detailed examples of several different standard configurations based on small to large system sizes and a set of standard assumptions. If the Customer requires different requirements for redundancy, backup storage etc this will obviously change.

Implementation Services (Individual Customer Requirements)

The feasibility study is almost always required to collect and agree all specific customer requirements. Sysdate has estimated, based on experience, it is likely that implementation has allowed for an element of customisation & modification costs for each installation.

Sysdate would provide complete plan after proper project scoping and analysis was completed. This always forms part of the initial Sysdate project planning process. Pricing could be lower depending on the result of the project scoping and analysis exercise. A complete project plan is worked out based on the number of days required to complete the project.

NGSystems Configurability

The NGS is designed to be highly configurable in order to meet the requirements of a changing and evolving telecommunications market. Localisation and Internationalisation to different country requirements is catered for within the design and is configurable by changing the properties data. Workflow can also be implemented from here either using our proprietary tools or using tools supplied with Oracle or BEA.

The design is completely convergent and allows for new services to be added using parameters only. As the system is completely modular and object oriented it can incrementally added to on a component basis and is infinitely extendable. Old modules can be replaced with new or upgraded modules using standard interfaces. NGS can also integrate with other EJB, Corba compliant products from 3rd parties.

NGS Modularity and its effect on Pricing

Only the modules required can be purchased and installed and therefore implemented. This **reduces** the cost of purchase of the NGS, as it allows the customer to choose only the modules that they require. Further modules can be added at a later date as finances permit.

Sysdate is committed to continual improvement of its systems as well as creating new modules and features for the system. These new modules will be offered to existing customers at preferential rates. Upgrades to existing modules are included in the annual support fee's.

The following list provides the modules that are currently available in the NGS

NGS Modules

Subsystem No	Product and Subsystem Name	Module Name
1	NGCustomer. Customer Relation Manager	Customer Care
		Dealer&Distributor
		Lead Management
2	NGBill. Service	Service - Wire Line
		Service – GSM
		Service – GPRS
		Service – UMTS
		Service – CDMA
		Service – TDMA
		Service – Backbone Data Transmission
		Service – VoIP
		Service – ISP
		Service – D/AMPS
		Service – TACS
		Service – NMT
		Service – CATV
Service - Utilities		
3	NGBill. Charges	Fixed charge
		Usage charge
		Discount
		Tariff
4	NGBill. Finance	Ledger Transactions
		Billing Run
		Interface to external system
		Tax & Nominal Account
5	NGBill. Credit Control	Credit Control
6	NGBill. Post-paid Rating Engine	Call Rating
7	NGReal. Pre-paid Billing	Pre-paid Service on OSA/Parlay or RMI

		Real Time Rating Engine RADIUS Server
8	<i>NGStock. Inventory</i>	Stock Control
9	<i>NGLine. Line Plant Management</i>	Line Plant Inventory & Status Management Geographic Information System
10	<i>NGWorkflow. Workflow</i>	Workflow Problem List Request for Change Status Management
11	<i>NGMediate. Mediation & Provisioning</i>	Mediation Single Interface SNMP Manager Provisioning Single Interface
12	<i>NGConnect. Interconnect</i>	Interconnect Route Management Reconciliation Revenue Sharing
13	<i>NGRoam. Roaming</i>	Roaming TAP3 Management
14	<i>NGWeb. Web-based Customer</i>	Web-based Customer Self Management
15	<i>NGDeal. Web-based Dealer</i>	Web-based Dealer Management
16	<i>NGIntegrate. Integration</i>	Integration with external system
		Report Generator
		Form Generator
		Web Form Generator

Chapter 1 – Sysdate Product Line

The above listed modules addressed in brief below.

NGBill. Subsystems and design assumption

Product NGBill consists of the following subsystems, which will be listed here separately:

- Service (Wire Line (PSTN), GSM, GPRS, DAMPS, NMT, TDMA, CDMA (incl. 2000 1X), UMTS, ISP, VoIP, Backbone Data Transmission, CATV, Utilities, etc.)
- Charges
- Ledgers
- Credit Control
- Post Paid Rating Engine

These groups can be thought as the separate modules. Accordingly to the way the system was designed each entity in truly modular on all levels: Data Base, Application tier and GUI.

NGCustomer. Customer Care

Customer Care is the service, provided to potential customers prior to deciding to order and the management of all queries, upgrades, deletions, etc. necessary to maintain a high quality of service. Customer Care is a module controlling whole spectrum of functions relevant to a Customer from Lead stage till Account Termination, including account registration, deactivation etc.

Three basic requirements of the Customer Care or Customer Relation Management system are the following:

- Store all necessary information about the customer
- Keep a track of the changes made to the customer information
- To have a quick access to the needed data by an operator.

One of the main and popular features of the modern Customer Care is N-tier customer structure, when it is supported the unlimited depth of customer's organisation hierarchy. Our system goal is to allow unlimited depth of tiers within an account structure, and to provide for flexible billing of different services at different points within that structure.

NGS supports unlimited number of independent N-tier structures.

Divorcing the Customer structure from Billing, Discount, Payment and other structures

One of the most difficult aspects of providing n-tier architecture is how to provide for all of the possible corporate structures and where to place information within that structure. Our proposal is based on the observation that such structure is generally only required at the invoice presentation level for formatting reasons, but has no real impact on billing. At the end of the day, a set of contracts is the sole financial responsibility of a single contact, irrelevant of the corporate structure. We should not care if they wish to call corporate structures cost centers, divisions, groups, or departments. We simply want to be able to enter this information simply, and to assign contracts to the person responsible for payment. It is therefore proposed that any functionality relating to displaying corporate structure be maintained separate from the billing implications as it only serves to force the addition of unnecessary complexity to the billing process.

Although functionally similar to the request for the ability to apply discounts at any level, and the top of that level can be higher or lower than top of billing structure.

All charges assumed to be made at the contract level, and this structure determines how to allocate the invoicing of those completed charges.

Automatic logging facility

The system automatically allows to keep all changes made to a customer's attributes. The number of the information to track is a subject to tune.

The system is object-oriented, the design was based on an assumption that all objects must keep the history of changes, can be date sensitive, data should be localised and there are a lot of other useful types of behaviour, which is inherited by all entities from the same parents.

Quick access to the data

Having substantial experience in creating and implementing the CRM systems, our team designed the technique, which makes a freedom to operator to design own workspace, together with set of trees, tabs, graphs and other modern visual components, it was designed a unique GUI system, where each inch of the screen is meaningful, dialogs are easy to work with, and the operator does not need to make any extra clicks.

Churn management

Another important feature is Churn management. Using Data Mining technology the system allows an indication of the customers, who are likely to leave.

NGBill. Service

The module is featured to accommodate contracts for Wire Line (PSTN), GSM, GPRS, DAMPS, NMT, TDMA, CDMA (incl. 2000 1X), UMTS, ISP, VoIP, Backbone Data Transmission, CATV, Utilities, etc.) This is a module supporting services and products customer can subscribe to. The two main neighbors of the module are Customer Care with customers, subscribing to the service and Charge, storing charges, tariffs and discounts which can be applicable for the service during whole life cycle.

The Multiple Service modules provided, give easy-to-use/easy-to-add capability to a Customer based on the following design module features, such as:

- N-tier structure
- Contract level
- Service level
- Value Added Service level
- Connection object

On each level the data storage structure is N-tier's one for any type of grouping (family, friends, corporation etc.).

It is possible to apply all types of charges and discounts on any of levels.

Provisioning system is configured by special Connection object, together with *NGMediate* product.

NGBill. Charges

The Charge module provides for advanced charging and discounting capabilities giving a flexible tool to enable the maximisation of the customer's ARPU.

The module controls all charges and discounts used in the system, and makes these alive by a set of Charge Plan entities which defines when, which charge is applicable for the Billing Group, Customer, contract, Service or VAS.

Tariff system is a part of the product. Here are just some of the features, supported by our Tariff system:

- Unlimited number of amounts to achieve, based on independent calculating schemas, can be produced at one go.
- Bundle type of discounts for a fixed rollover period.

- Calculation based on unlimited number of parts of one usage (call, event etc.) with different price.
- Unlimited types of Units of the usage (Time, Volume, Events, Wap clicks etc.)
- The tariff system is modular; it is possible to tune the tariff of to create individual tariff for a customer or service.

NGBill is truly convergent. It is just one Tariff system for the Prepaid and Postpaid customers.

NGBill. Ledgers

The Ledger modules support truly convergent Billing thereby providing the Customer with flexible and easy-to-modify method to enable his clients to pay for different services. Significantly it gives the Customer a powerful tool to manage his clients depending on their payment behavior and the Customer's pre-defined classification rules. These are based on the following built-in features:

- Item based allocation
- Tax reconciliation on item level
- Manual invoices linked to invoice run
- "Balance is in credit" control

Ledger transactions

There are three types of financial operations in the Ledger:

- Normal
- Journal
- for Reconciliation

"Normal" financial operations are shown here:

- Manual Invoice
- Manual Payment
- Payment Relocation
- Deposit
- Deposit To Cash
- Credit Note
- Refund
- Invoice Run
- Payment Run
- Credit Control Run

NGBill. Credit Control

The function defines stages and actions for a customer with bad ledger balance. The Function Credit Control Run performs the actual stage change, which triggers particular actions, based on instructions given by the user. All Credit Control stages are unique to Credit Control Circle and to a profile of customer types. Any stage is unique for subsidiaries defaulted by a user too.

It is possible to define a number of days to remain on the stage, and the critical customer balance amount allowed in order to change the Credit Control Stage.

NGBill. Rating Engine for post-paid Billing

- Supports multi, rollover, shared Bundles, cross band call calculation, multi types units of the call(s)
- Allows flexible product packaging, it supports major rate plans offered by service providers round the world. The system enables price plans to be made for each customer category. Alternatives can be provided to the normal pricing of traffic / calls. Separate price plans will allow the operator to assign customized prices to different customer groups for the same type of call.
- Discounts can also be offered and can be open end-dates or fixed end-dates. Volume discount at the service level and account level can be supported. New

rate plans can be tested using live data off the production environment before implementation. The tariffing module (rate plan module) has access to almost every data element in the system providing for friends and family plans, home zone rating and almost anything else a marketing department can create. Promotional pricing for specific periods of service (30 days, 60 days, 90 days), change of price plans at any time to be effective immediately. Pro-rated charges (customer moving from unlimited usage plan to limited usage plan or vice versa), addition of value added services in the middle of a cycle with prorated charges. It supports GPRS mode as well.

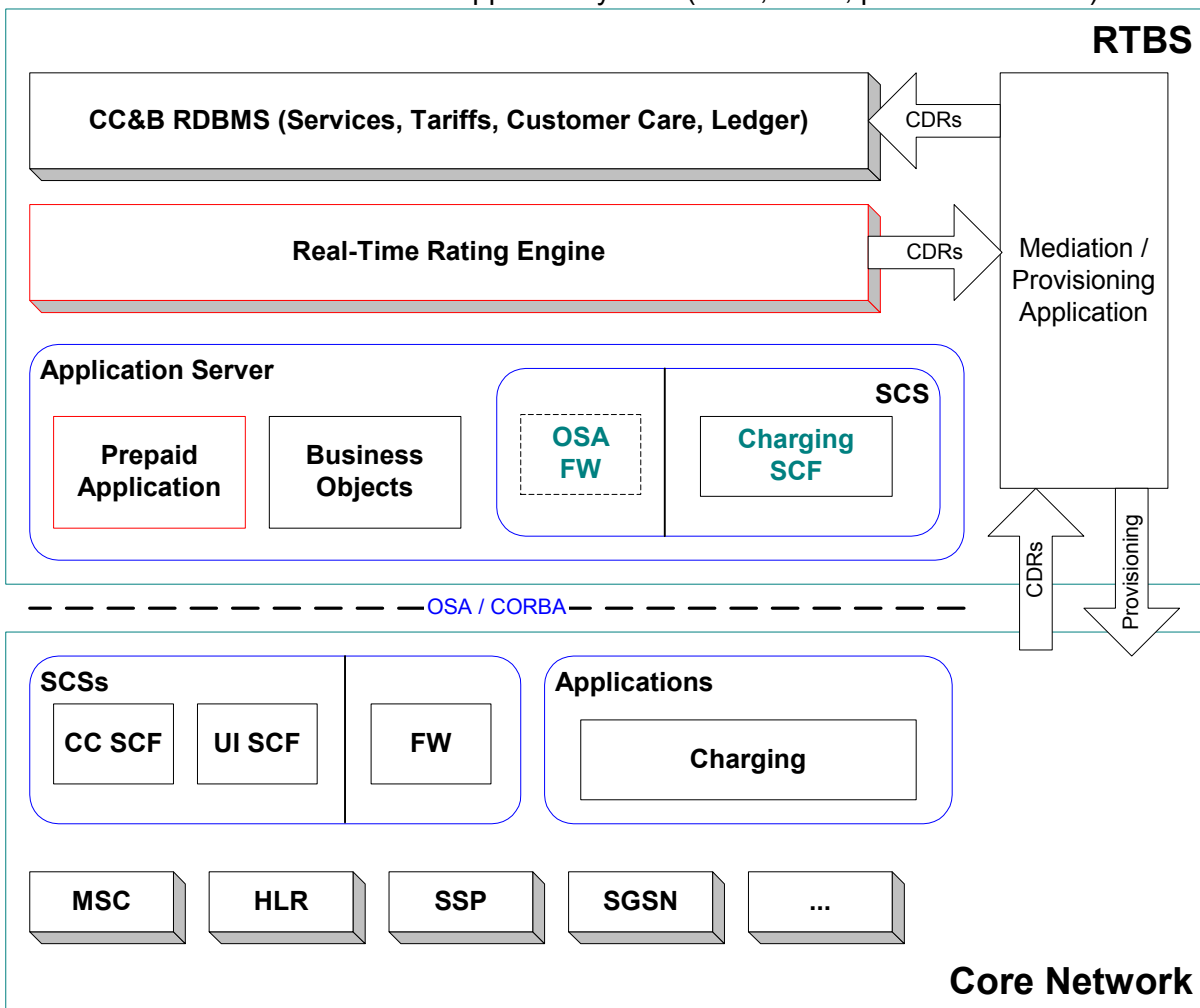
NGReal. RTBS with Parlay/OSA platform implementation

Shares the same data, tariff and discount System with post-paid Rating Engine. It is an element of truly convergent Customer Care and Billing (CC&B) System.

Real-time Billing System enhances existing Billing System and communicates with core network using industry-standard Parlay/OSA APIs. RTBS is enhanced existing product with a multi-session capability to establish real-time control of several simultaneous charging sessions for the same account.

Implementation of the Parlay/OSA APIs for current state consists of

1. Call Control Prepaid Application (“voice” events).
2. OSA Framework, Call Control and User Interaction SCFs (it is implied that full-featured FW and Call Control SCFs are provided by a Network).
3. Charging Application, which allows user account management using UI SCF.
4. More services are to be supported by PPA (SMS, MMS, packet events etc).



NGStock. Inventory system

The Stock group of modules provides the user with wide range of methods to intelligently manage very different ranges of resources made available to his clients. The Stock group of modules are extensive but are based on user friendly and straightforward design principles which include innovative capabilities such as the “Production Depot” program suite which enable the inclusion of new and unique items without having to start from scratch.

Mostly, stock problems are product list management and stock transactions management. Generally, any stock transaction is an operation with items (hardware) of different types (product). Operations are usually: purchasing, sales, change of items location, price or other attribute, making somebody responsible for an item for a while (in case of lease or commission).

The Stock system can be related to a Ledger system. That allows a financial control for any transaction on the stock. The system supports FIFO (first in – first out) facility to store exact information for product owner about stock value for each item in each location.

NGLine. Line Plant Management System

LPMS is a system for the management of the line plant inventory, its status, availability and configuration into customer routings. It is designed to be integrated with the customer care and Service systems to enable wire line network providers to manage their service provisioning tasks more efficiently.

The LPMS captures and maintains all line plant records, routes and management information regarding line plant in use in the corporation on the distribution side of the main distribution frame. Using artificial intelligence technologies, this data is used during application processing to automate the assignment of routes wherever possible. Requests that cannot be routed may be wait-listed or held, and automatically routed once appropriate line plant becomes available.

Planners, engineers and the commercial departments are thus able to streamline and improve the service level offered to subscribers and potential subscribers. Accurate records also facilitate more accurate forecasting, thus enabling the network operator to become more efficient thanks to the timely and accurate provision of telecommunications capacities.

LPMS has an open systems architecture designed to afford portability and scalability, enabling large and start-up operators to configure an appropriate operating environment secure in the knowledge that LPMS will accommodate business growth for the longer term.

NGWorkflow. Work Flow

NGS via own product *NGWorkflow* has the ability via the Java messaging service (JMS) to initiate workflow processes for any database process or procedure. For instance the provisioning process at the CSR level is a major aspect of the system. Equally as important is the system’s ability to manage the provisioning process once the order has been committed.

The *NGWorkflow* data model allows organisations to define specific workflow processes for as many items as needed across multiple industries. These workflow processes are set up initially at the time of implementation and then maintained throughout the use of the system.

In day-to-day operations, CSR’s and back office provisioning personnel need to gather information about pending provisioning order as quickly and easily as possible, and manipulate events and dates in order to meet new circumstances. *NGWorkflow* allows CSRs and provisioning personnel to gather this information using a fully configurable graphical user interface.

MNP is managed by using our *NGWorkflow* engines during the provisioning process. The statuses of all transactions can be traced and the *NGWorkflow* determined at any time.

NGWorkflow is a major component of the *NGS* workflow management functionality, and are defined according to the methods and procedures in place at the operator's organisation. In *NGS*, *NGWorkflow* are defined by item so a CSR can tell the Status of where a customers order is within the system at any time.

NGMediate. Mediation & Provisioning

NGMediate - this mediation device product uses CORBA and Java technology to provide Customers with an easily understood and manageable product designed not only to interface with the various modules in the Sysdate product line but also with other Billing and Customer Care systems (provided by other suppliers) as a separate unit, with or without a GUI front end or as a separate class.

It facilitates the collection of call record data from the network elements, converts to usable data required by the rating engine and enables the Customer Care system to send commands to the network elements of the various telecommunications networks (see Service module above).

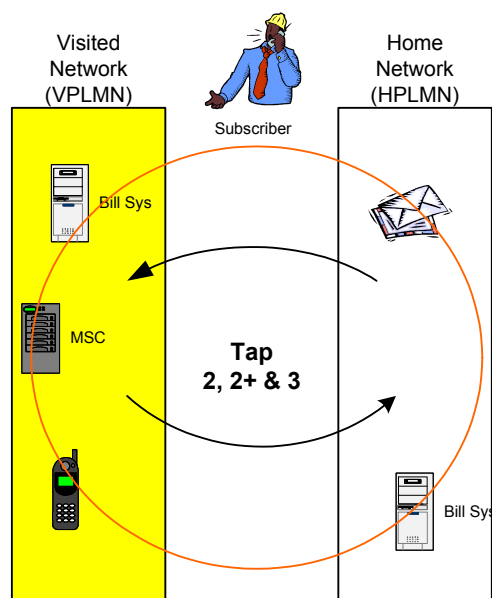
NGConnect. Interconnect

The Interconnect suite provides the user with advanced options for cross-charging and accounting with its interconnect counterparts including Clearing House and Revenue Sharing capabilities.

NGRoam. Roaming

Tap 2,2+ & 3 GSM Roaming + other non standard formats handled for other network systems like CDMA.

The Roaming suite of programs includes Clearing House capabilities.



ASP modules for On-Line Web based Billing

The Customer is offered a variety of ASP modules available for on/off-line use by the Customer itself or on an outsourcing base (b2b/b2c implementation scenario/services) – these include for example: Customer Care, Service, Stock, Finance, Credit Control, Mediation/Provisioning, Report, Charges, Tariffs, Invoice Run, Interconnect, Roaming, Rating Engine etc.

Billing for ASP is available as a virtually **real-time option**.

The web-enabled modules provide the Customer with a wide range of cost-effective options for managing its business. It supplies a Customer with secure remote access to 100%-complete Billing System functionality through Web window, which it can offer to its clients.

NGWeb. Self Care Web interface for clients

NGWeb was designed from the ground up with the consumer in mind and is an innovative, easy-to-deploy HTML application. Depending on the level of authority delegated to the Customer's clients the Self Care suite of programs enable the clients to look after their own affairs – for example adding/removing subscribers, altering their internal billing hierarchy, changing rate plans, ordering stock etc – thereby lessening the burden on the Customer Care departments with the attendant benefits of improving clients' commitment and minimising churn

NGWeb User Interface Example

The screenshot displays the 'Customers' web interface. At the top, there is a navigation bar with links for 'Main', 'Settings', 'Search', 'Help', 'Logout', and 'iBill'. Below this, a breadcrumb trail shows 'Main > Customer Care > Customers' and the user is identified as 'Administrator'. The interface is divided into several sections:

- Filter customers:** A list of filter options:
 - By customer's code
 - By customer's names
 - By customer's type
 - By customer's phones
 A 'Result' link is also present.
- Actions:**
 - Do filter
 - Add customer
 - Add customer by lead
- Reports:**
 - List of active customers
 - Customer overcomes
 - Failed customers

The main content area shows a list of filter criteria:

- By customer's code: 1001* (with a search button and 'Do filter' / '? Syntax' links)
- By customer's names: Includes input fields for 'first name', 'last name', and 'regional name' (with a wildcard '* a*' in the regional name field).
- By customer's type
- By customer's phones

Below the filters is a table of customer records:

Code	Name	Regional name	Title
1001	Asd Vegul	Asd Vegul	Mr.
1001005	Beuil animalomar Jikela	Beuil animalomar Jikela	Mrs.
1001006	Defnam Marlanem	Defnam Marlanem	Mr.
10010062	Nemarfg Namarke	Nemarfg Namarke	Mr.
100100632385	Repagtarment asnemt	Repagtarment asnemt	Mrs.
10010064	Merutlaw repauntm	Merutlaw repauntm	Mrs.
10010075	Anerumetn enemtuam	Anerumetn enemtuam	Mrs.
10010078	Umeltna neljuetmen	Umeltna neljuetmen	Mrs.

At the bottom of the table, there is a pagination control showing 'Page 2' and navigation links for 'first', '≤', '1', '2', '3', '4', '5', '≥', and 'last'. A 'Go to ...' link is also present.

The footer of the interface contains the copyright notice: '©2002 New Systems, Ltd. All rights reserved' and a 'System log' link.

NGDeal. Self Care Web interface for Dealers

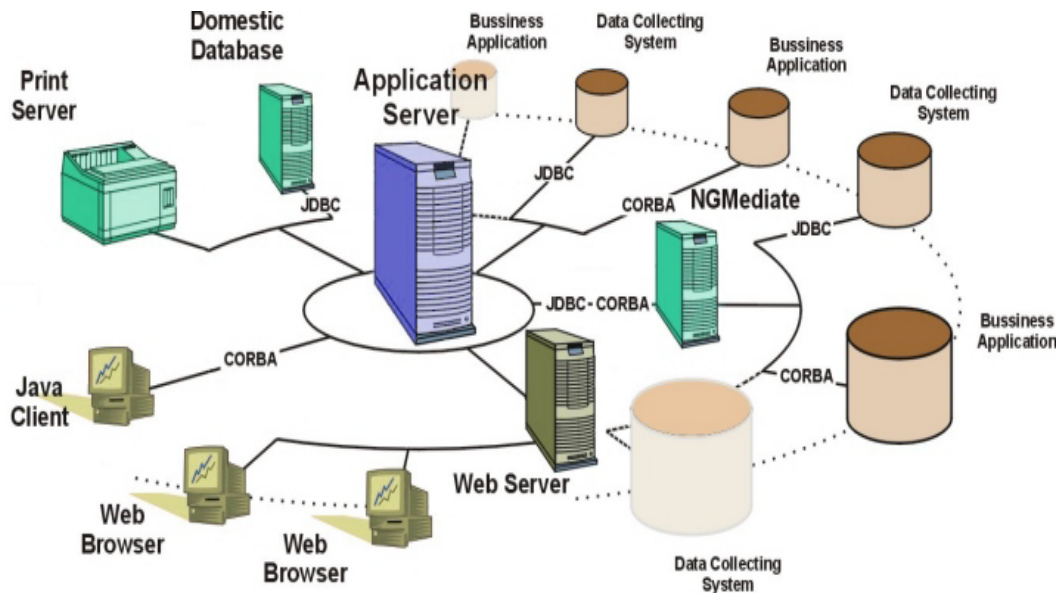
NGDeal is web-enabled module, which (depending on the level of authority delegated) empowers individual Dealers to control and monitor their own customers within the subscriber base, effectively in real time.

A Dealer can access via *NGDeal* Web & Application Server to review and carry out any of the following activities:

- Edit Customer Account Information.
- Review Recent Invoice Statements.
- Review Account Status.
- Connect Services,
- Stock transactions, etc.

NGIntegrate. Integration

At the heart of the Sysdate solution is the *NGIntegrate* suite of programs, which not only provides the interface for the various stand-alone modules in the Sysdate product line but also enables these modules (or any individual module/s) to interface with each other or indeed those of other existing systems.



The Integration module is the powerful platform that provides a user with a wide range of capabilities to incorporate its legacy information systems with new systems required to be deployed

Chapter 2 – NGS Product Suite: Main Features Overview

The *NGSystems* is a 4th generation Billing, Customer Care & Integration solution for the telecommunications industry. *NGS* uses an N-tiered architecture, which provides the ideal scalable platform to support any client from start-up to millions of subscribers and for processing the tens of millions of call records. Its Java based Graphical User Interface enables Sysdate to develop the product using rapid application development tools (RAD).

A core team of programmers who have over 50 Years of combined experience in developing and implementing successful Billing systems developed the current version of *NGS*. This development team has created a state-of-the-art product that would satisfy the billing and customer care requirements of all sizes of service providers and network operators.

Flexibility and Modularity

Our systems are both flexible and modular, that is, our architecture permits the addition or modification of various functions, allowing telecommunications providers to meet their unique system requirements. They are also scalable, that is, they are designed to cost-effectively increase capacity in step with a client's subscriber growth from as little as a few thousand subscribers to upwards of five million.

Performance and Scalability

NGS's N-tiered architecture provides the ideal scalable platform to support any client from start-up to millions of subscribers and for processing the tens of millions of call records this requires.

The system has been designed to provide the best possible performance for a variety of different sized customers. Its N-tiered architecture allows for multiple servers to be used to distribute the processing load and maintain high performance.

The system is scalable from running application server and database tiers on the smallest UNIX server and the user interface on multiple attached Java Stations or PCs. To run the database on multiple distributed servers and the application servers on multiple NT servers, with as many clients interfaced through the NT servers as necessary.

Although capable of processing larger subscriber volumes, Sysdate believes that the attributes of its billing systems endow the Company with a special competitive advantage among those telecommunications providers with upwards of 5 Million customers.

N-Tiered Architecture Configuration

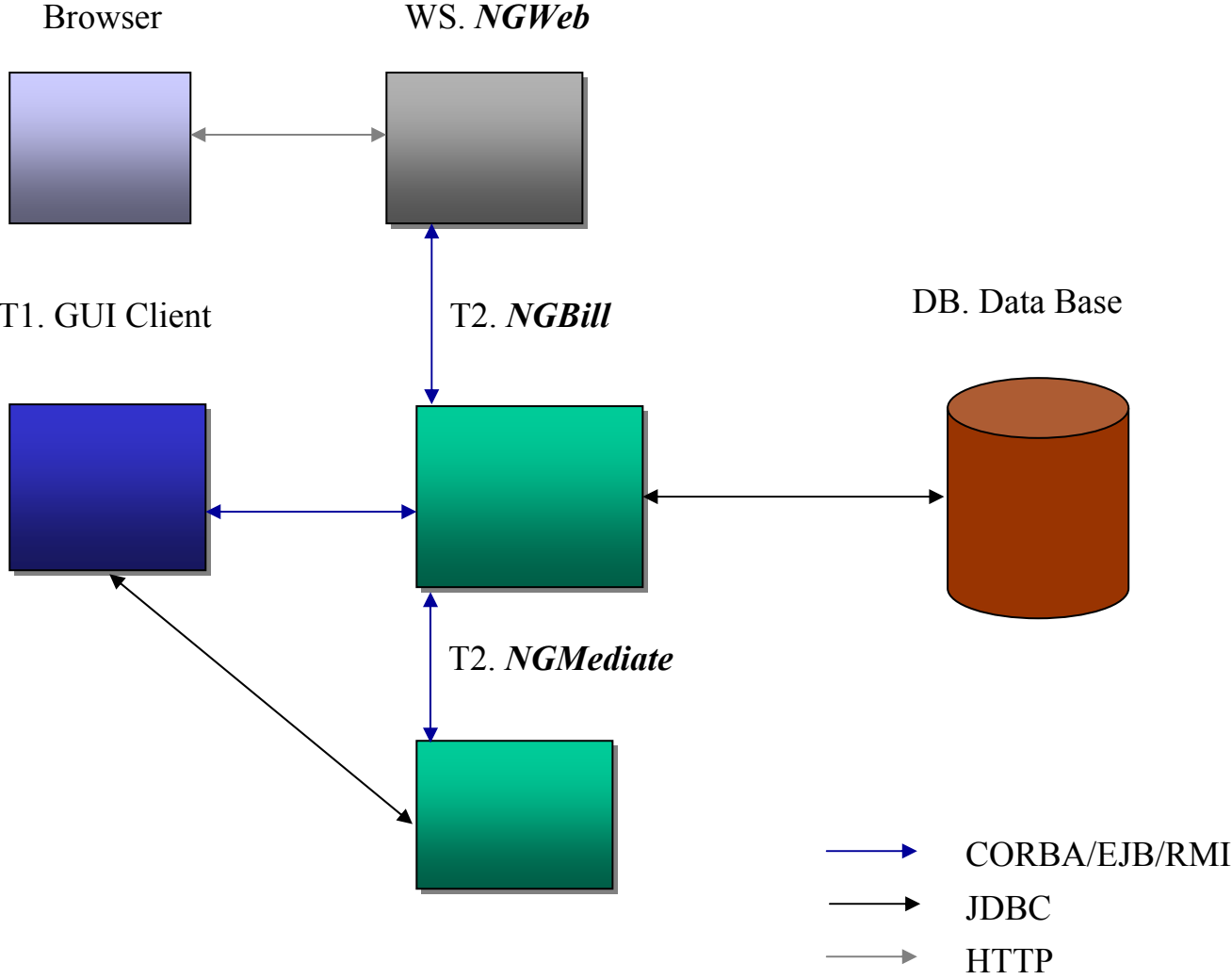
It is very important to understand that by using thin client technology maintaining the system occurs on only one to two clients. If maintenance updates are required to upgrade, enhance or maintain the client application these will always occur on the application server level so in effect the Administrator is only maintaining 1 or 2 clients depending on the topology of the network desired. All that is required is either a URL or Shortcut on the desktop to access *NGS*.

Overview of Family of Products Architecture Description

The System is a family of independent modules which can be integrated to benefit the whole product family.

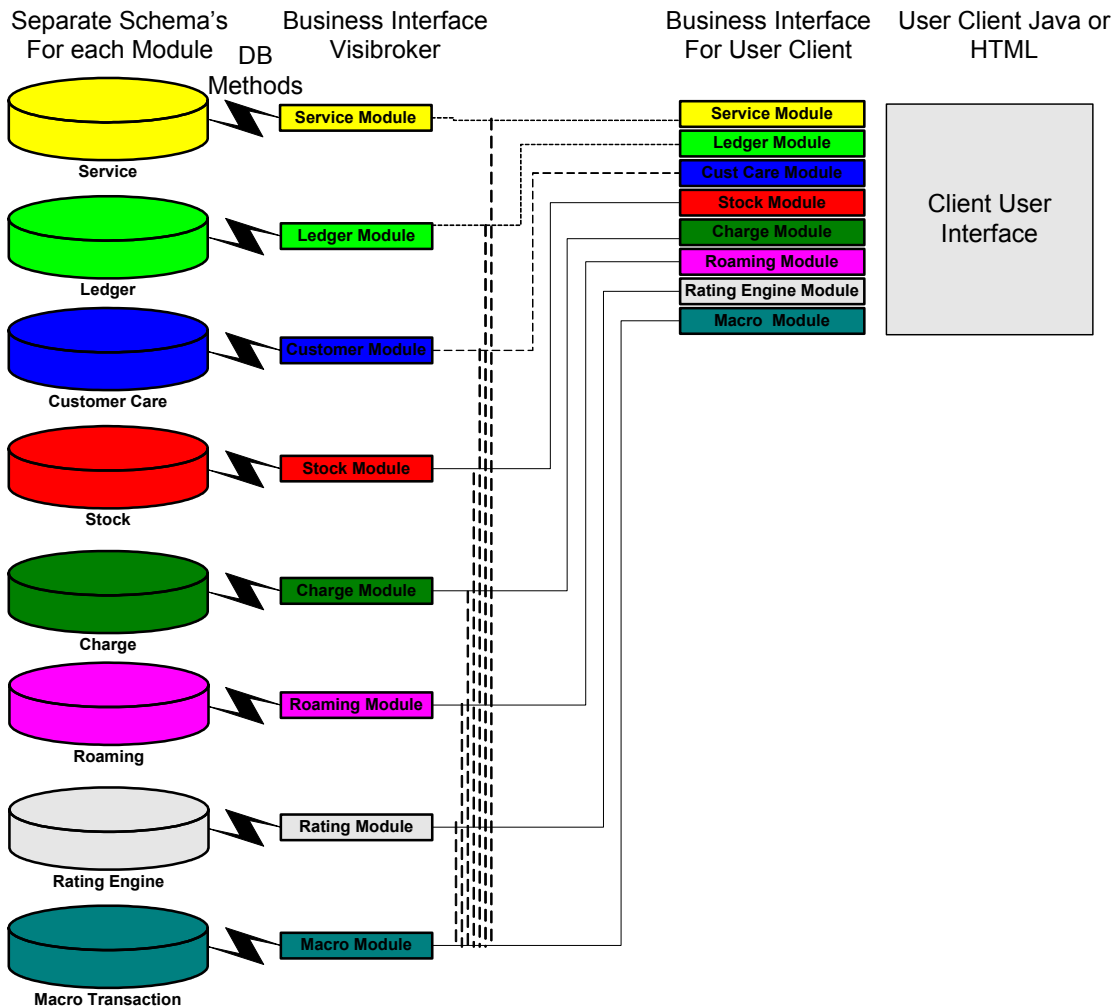
There are two types of GUI front-ends: Application type of front-end for internal networks and Web based front-end for Internet access to data and functions. The system is designed to be

flexible to interface with any external Data Base, Java, CORBA and EJB classes. It represents n-tier architecture for a typical **B2B and e-commerce solution**.



Modular Database & Middle Tier Structure

The database, powered by Oracle 9i or later, services the system with data and basic functions for the data. The Database is modular and consists of separate modular entities.



Tier 2. *NGS* collects all business entities, related to the *NGS*. *NGMediate* is another module containing mediation and provisioning components (*NGMediate*). All these modules are wrapped into the following platforms: JAVA, CORBA with VisiBroker and EJB (Enterprise Java Beans) with BEA WebLogic or Borland Web Server.

Tier 1 is flexible object – oriented front-end which is based on the Swing Java components library. Together with a Web Server these give the choice of two GUI front-ends for external and internal network solutions.

Looking closer at Tier2 and the Database, each *NGS* module is 100% modular and can be represented as an independent unit with own development circle.

NGS Example Menu Structure

DESCRIPTION	Tab Function
Customer Care	(Customer Leads to disconnection)
Charge	(Charges for service or product)
Common	(Setup Functionality)
Service	(Multiple Service Types)
Ledger	(Sales Ledger Screens)

Stock	(Stock System)
Roaming	(Roaming)
System & Support	(System & Support)

GUI

Graphic User Interface is extremely user friendly, easy to set-up and re-design. The GUI offers an extensive set of localization formats and options and accommodates advanced Industry standards – especially it is:

- Table setup driven
- Object oriented
- Multi lingual
- User PC setup driven for date/time/number masks and language
- AWT & Swing components based
- Drag & Drop development mode
- User self navigation enabled

NGS Screen Design

The screenshot displays the NGS software interface. At the top is a menu bar with options: File, Common, Stock, Customer Care, Charge, Service, GSM, CDMA, WireLine, Data Transfer, Cable, Utilities, Ledger, System, Support. Below the menu bar is a tabbed interface with tabs for Customer, Address, Identification, Billing Group, Contract, Service, Hardware, and Ledger. The main area is divided into several sections:

- Services Table:** A table with columns: Code, Service ID, Name, Type Name, Status Name, Date From, Date To, Network Type, Network, Network Name, Contract No, Contract Name, Customer No. It lists several services, including those for Mr. Alexandr Belichenko.
- Customer Center Tree:** A tree view on the left showing a hierarchy of customers and services, such as 'INO, Mr. Gennadiy Yu. Pally' and '66, Mr. Piter2 P. Grigorenko ppp'.
- Service Details Form:** A central form for editing service details, including fields for Service Code, Customer Code, Contract No, Name, Regional Name, Network Code, Connection Type, TCP Connection Code, Mobile No, Air Limit, SIM No, IMEI No, Status, and Activation/Deactivation Dates.
- Search Window:** A dialog box titled 'All GSM Services' with a list of services and a search field.
- Drop Down Menus:** A context menu is visible over the search window, offering options like 'Copy cell', 'Format', 'Preferences', and 'Clear'.
- Call Log:** A section at the bottom left shows a list of calls with columns for time and status.

Annotations with arrows point to the following elements:

- Master Customer:** Points to the top-level customer in the tree.
- Service:** Points to a specific service entry in the table.
- Attached Service attributes:** Points to the details form for a selected service.
- Search Window:** Points to the 'All GSM Services' dialog.
- Drop Down Menus:** Points to the context menu over the search window.
- Shows Details of the Service:** Points to the service details form.

Customer Care Module Example

Customer Care is a module controlling whole spectrum of functions relevant to a Customer from Lead stage till Account Termination, including account registration, deactivation etc

Customer

Details | Id Cards | **Addresses** | Contact | Relations | Bil. Groups | Charge Plan | Contracts | Comment | History

Addresses (Details | Buttons)

Type	Type Name	Country Code	Country Name	State Code	State Name	City Code	City Name
US...	Usual pos...	24	Ukraine			KV	Kiev
US...	Usual pos...	24	Ukraine	67	Ohio	KV	Kiev

Row 1 of 2

Code: 119 >

Code: > G

Type: USUAL v Usual post address

Zip Code: 02097

Country Code: 24 > G Ukraine

State Code: > L G

City Code: KV > L G Kiev

Address: 266, 35, MILOSLAVSKAYA STREET?!

Regional Address:

Phone: 044 5349833

Facsimile:

Email: slava@kiev.ua

Timezone: ...

Daylight Saving:

Region Tax Code: > G

Is Default:

F3 Add | F4 Amend | Print | F6 Clear

<Ready>

Customer Address Web-Screen Example

[Main](#) | [Settings](#) | [Search](#) | [Help](#) | [Logout](#) |

Customer

Customer's elements

- [Details](#)
- [Id Cards](#)
- [Addresses](#)
- [Contacts](#)
- [Relations](#)
- [History](#)

Actions

- [Add a new address](#)
- [Amend address](#)
- [Delete address](#)

Reports

- [Contracts](#)
- [Hardwares](#)
- [Services](#)

References

- [Contracts](#)
- [Hardwares](#)
- [Ledger accounts](#)

» [Main](#) » [Customer Care](#) » [Customer](#)
user: Administrator

Code:

Addresses

Addresses						Print
	filter	columns	settings			
▼ Code	Country	State	City	Address	Phone	
<u>1</u>	24 - Belarus		KV - Kiev	266, 35, MILOSLAVSKAYA STREET?!	044 5349833	
<u>2</u>	24 - Belarus	67 - Ohio	KV - Kiev	Hreschatik 10/6		
<u>3</u>	24 - Belarus		KV - Kiev			

Page 1 [first | < | 1 | > | last] [Go to ...](#)

Address

Code:

Type: Home post address

ZIP Code:

Country Code: Belarus

State Code:

City Code: Kiev

Address:

©2002 New Systems, Ltd. All rights reserved [System log](#)

Further Information & System Documentation

Sysdate Products Group delivers comprehensive software documentation with each Release of NGS. The documentation is a combination of standard documentation for the most recent major release of the software as well as any specialized documentation for the particular deployment. All documentation is subject to strict document control procedures. Documentation can be made available in CD-ROM and on-line using Adobe® Acrobat document reader.

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Terms, Acronyms and Abbreviations

The following table lists terms, acronyms and abbreviations that could be used in this document.

Term, Acronym or Abbreviation	Description
API	Application Programming Interface Application Programming Interface. An API is a clearly defined method used by programmers to make requests of a computer operating system or another application. In the Java™ programming language, the API is a set of standard runtime libraries that allow access to the resources of a host computer.
ARPU	Average Revenue Per User
ASP	Application Service Provider An ASP deploys, hosts and manages access to a packaged application to multiple parties from a centrally managed facility. The applications are delivered over networks on a subscription basis.
AWT	Abstract Window Toolkit Provides the Java GUI. Contained in the java.awt package. (A package is a collection of importable classes.)
CA	Credit Advantage. This is a credit reference-checking bureau.
CC	Customer Care Functions within the Telecommunications Operation Map which interact with the actual customer including Sales, Order Handling, Problem Handling, Customer QoS management and Invoicing and Collection of payments.
CDR	Call Detail Record Computer record containing data unique to a specific call. [This information is processed as a unit and contains such details as originating switch, terminating switch, call length and time of day.] (2) Processing of call-specific information -- start time, elapsed time, number dialed, date, and other pertinent customer data -- to provide call detail reports and invoices.
CORBA	Common Object Request Broker Architecture It's an enterprise software architecture designed to allow disparate applications on different operating systems to operate together, transparently to the client software.
CSP	Carriage Service Provider means as per section 7 of the <i>Telecommunications Act 1997</i> .
CSP ID	CSP ID means an identification code allocated to a CSP.
CSR	Customer Service Representative Customer Service Representatives answer consumer questions and resolve customer problems.
Customer	Customer means a person to whom an MSN is issued.
EJB	Enterprise Java Beans a component architecture for the development and deployment of object-oriented, distributed, enterprise-level applications. Applications written using the Enterprise JavaBeans architecture are scalable, transactional, and multi-user and secure.
ESN	Electronic Serial Number The unique identification number embedded in a wireless phone by the manufacturer.
FW	An abbreviation for "framework" that is used wherever appropriate.
GPRS	General Packet Radio System. A means of delivering a packet based data network to mobile handsets using a GSM network.
GSM	Global System for Mobile communication is a digital mobile telephone system that uses a variation of time division multiple access.
GUI	Graphic User Interface A graphic based interface between a "user" and a computer.
HLR	Home Location Register Database in a cellular network that contains subscriber information; used in handing off calls to networks outside the subscriber's local area (roaming).
HTML	Hyper Text Markup Language The standard markup language used for documents on the World Wide Web.
IN	Intelligent Network an architecture defined in the ITU-T Q12xx recommendations which supports the provision of value added services in a communications network environment through the use of off-switch logic initiated via a Service Control Point.
ITU	International Telecommunications Union The ITU is an agency under the United Nations charged to define standards for international telecommunications. The ITU is

	the parent organ for ITU-T (formerly CCITT) and ITU-R (formerly CCIR).
JAIN	Java Advanced Intelligent Network Integrated Network Application Programming Interfaces for the Java Platform.
MDN	Mobile Directory Number A 10-digit directory number used to call a wireless phone.
MMS	Multimedia Message Service.
Mobile Carrier	Mobile Carrier means a Carrier that operates a Mobile Network.
Mobile Network	Mobile Network means the facilities operated by a Carrier for the purposes of providing Public Mobile Telecommunications Services.
MSC	Mobile Switching Center A switch that provides stored program control for wireless call processing. Identifies the switching office that processes the cellular call.
MSN	Mobile Service Number means a number, other than an analogue AMPS number, that has been allocated under the Numbering Plan to a CSP for the provision of a PMTS. Although all allocated MSNs used for a PMTS are portable, the Customer can port only those numbers issued to the Customer.
Network	Network means a Carrier's or CSP's system, or series of systems that carries, or is capable of carrying communications by means of guided or unguided electromagnetic energy.
Network Provider	Network Provider means an OASD, a TrSD or a PSD.
OSA	Open Service Architecture, Open Service Access
Parlay	An Application Programming Interface created by the adoption by the JAIN community of the Parlay API for use by service providers outside the telco trusted domain or value added service providers with the telco domain.
PPA	Prepaid Application
PSTN	Public Switched Telephone Network
Public Mobile Telecommunications Service	Public Mobile Telecommunications Service has the meaning given by the Act.
QoS	Quality of Service Refers to the measure of service quality provided to the user.
RDBMS	Relational Data Base Management System
ROI	Return Of Investment
RTBS	Real-time Billing System
RTRE	Real-time Rating Engine
SCF	Service Capability Function
SCP	Service Control Point A computer database that holds information on IN services and subscribers and is separated from the switch, making it easier to introduce new services on the network.
SCS	Service Capability Server
Service Order	The command sent to the network to action changes to the services available as part of the Subscription. Typical examples are service orders to connect, disconnect, bar, unbar, and so on.
SGSN	Serving GPRS Support Node A serving GPRS support node (SGSN) is responsible for the delivery of data packets from and to the mobile stations within its geographical service area.
SIM	Subscriber Identity Module. The means to identify a Subscription. The SIM Number is a 19 or 20 digit number always beginning '89' followed by some manufacturers codes, a unique serial number, and a check digits. Details of the Subscription are held on the handset using a SIM Card – a smart chip – which can be moved between different handsets if required. Also on the SIM Card is the IMSI number.
SLA	Service Level Agreement An agreement between an a service provider and a Customer company guaranteeing a certain level of service.
SMS	Short Message Service A service in GSM mobile networks allowing the transmission of short text messages (<160 characters) between mobile stations using a store-and-forward principle.
SSL	Secure Sockets Layer

SSP	Service Switching Point A switch that can recognize IN calls and route and connect them under the direction of an SCP.
Standard Hours of Operation	Standard Hours of Operation means 8 a.m. to 8 p.m. (Standard Time) from Monday to Friday, and 10 a.m. to 6 p.m. (Standard Time) on Saturday, unless otherwise agreed between CSPs on a bilateral basis.
Standard Time	Standard Time means: (a) Australian Eastern Standard Time (GMT plus 10 hours); or (b) if Eastern Daylight Saving Time (GMT plus 11 hours) is in effect and when any eastern seaboard State has introduced Daylight Saving Time, at that time.
Subscription	A contract between a Subscriber and the network. The person(s) to whom Services are provided. May also be referred to as the Handset.
Swing	The Java Swing package of classes is used to create GUI components for applets and applications.
Tariff	The set of rules defined to price the airtime used by the Subscription.
TCP/IP	Transmission Control Protocol/Internet Protocol
UI	User Interface
VAS	Value Added Service A service provided by a network that exceeds merely transporting user-originated information, such as message storage for later delivery, code conversion, electronic mail, etc.
VisiBroker™	A CORBA-compliant object request broker that provides an environment for the development, deployment, and management of complex, distributed applications written in C++ or Java.
VLR	Visiting Location Register
WebLogic	User modeling and workflow environment for BEA WebLogic Collaborate.
XML	Extensible Markup Language is a flexible way to create common information formats and share both the format and the data on the World Wide Web, Corporate Intranets, and elsewhere.
XSL	XML style sheet for formatting XML documents

Document Revision History

Version	Brief Description	Author
1.0	Initial 18 April 2002	Alexander Volynsky
2.0	Revised 17 December 2002	Gennadiy Paliy
3.0	Changes in Module list, Oracle is recommended.	Gennadiy Paliy