Real Time Prepaid Service Code Distribution (PSCD)

The Real Time Prepaid Service Code Distribution system (PSCD) is a complete electronic IT solution designed to provide a fast, modern, cost effective means of distributing Prepaid Codes, Products and Services.

The PSCD can be used to distribute any Prepaid Products or Services. These include:
- ❖ Services that employ an access code as a method of allowing the client access to Services or Products, or
- ❖ Prepaid monetary value transactions.

Examples of PSCD based systems include:
1) Telephony prepaid airtime code distribution (Mobile phone airtime, international, local and long-distance airtime, etc.).
2) Prepaid Internet Access.
3) Prepaid Cable TV, Land Line Telephony, etc.
4) Recharging Prepaid Smart Cards for Utility meters (water, electricity, gas, etc.).
5) Ticketing (theater, sports events, transportation…).
6) Lottery numbers – selection and distribution.

The PSCD solution encompasses all of the infrastructure, the software and the logistics necessary for installing and operating the system.   In particular, it supports the complete transaction sequence, including back office, database, communications, data transfer and end customer interaction.

Prepaid Service Code Distribution (PSCD) for Airtime Payment Schemes

Executive Summary

In the case of prepaid airtime code distribution, the PSCD system offers operation at a fraction of the cost incurred in the existing pre-printed system. The PSCD system is fully functional, has been installed and is actively serving several airtime distributors.

The advantages of the Prepaid Airtime Code Distribution System are:
- Eliminates the need for physical tickets, eliminating printing and manufacturing costs.
- Cuts distribution/storage costs.
- Supports Top-Up, EVD (ElectronicVoucher Distribution) and Batch modes.
- Increases security and eliminates risk of theft and fraud.
- Supports many and varied types of Airtime Ticketing.
- Enables the introduction of lower and of flexible ticket denominations as well as promotional tickets.
- Faster cash flow.
- Optimized transaction, stock and performance administration.
- Expands the distribution and clientele base.
- Continuous availability of stock.

Operational Features

Typical prepaid airtime distribution systems are shown in Figures 1 and 2.

In the existing setup (Figure 1), airtime is sold by means of preprinted tickets or cards. The airtime provider issues, by means of his computerized system, series of unique numeric codes. Each code is associated, within the computing system of the airtime service provider, with airtime privileges. The codes are then printed (by the airtime service provider or his authorized agent) onto cardboard or plastic cards, one code per card. Each card, therefore, contains a unique numeric airtime code. The code is painted over with a non-transparent paint. The cards are then distributed to the retailing outlets.
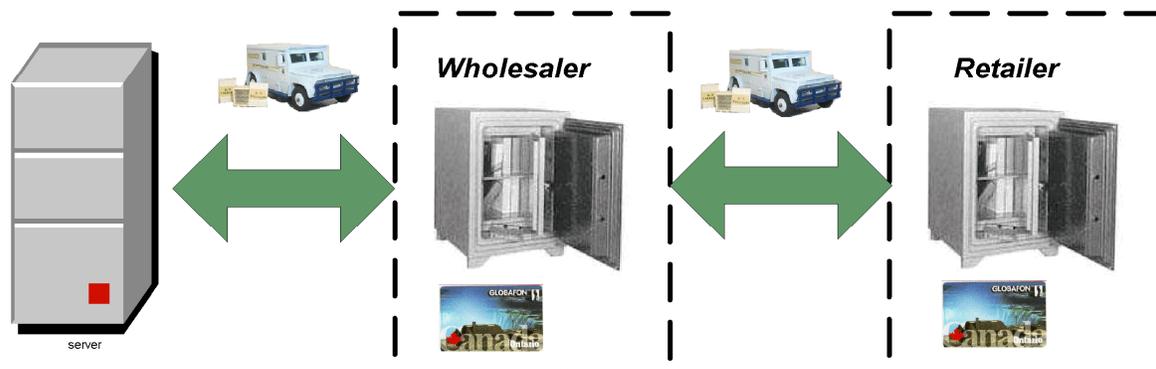
SP Center

Figure 1: Existing Air-Time Ticket Distribution

Each retailing outlet carries airtime cards for various airtime providers, and cards of various denominations for each such provider. Finally, the retailer sells the card to the end user. When that customer purchases an airtime card, he rubs the protective paint off of the numeric code, revealing its value to the purchaser. The overall process of airtime distribution, as it is currently implemented, can be summarized by the following sequence:

Phase	Description	Operator
1	Issuing Numerical Codes	Airtime Provider
2	Printing and Processing Cards	Airtime Provider or Agent
3	Card Storage – Wholesale	Airtime Provider or Agent
4	Card Distribution	Airtime Provider or Agent + Secondary Distribution Network
5	Card Storage – Retail	Retail Outlets
6	Card Sale	Retail Outlets

When analyzing the sequence, three main issues need to be addressed:

1. **Cost:** The accumulative cost of distributing the airtime code, from its point of inception at the Airtime Providers' facilities to its use by the end user. This cost includes the expense of manufacturing and processing the airtime cards, transporting them, storing them at various locations and the complex logistics involved in administrating and monitoring the distribution. It also includes the cost of financing the card values at the wholesale and retail levels (once issued, the cards are valuable). The financial overhead of security should also be taken into account.

2. **Risk:** The risk factors involved in the distribution chain, including storage and mobilization of the cards. These factors include the risk of card loss, theft, destruction counterfeiting and fraud. They also take into account safety issues, possibly involving physical harm and vandalism (to persons and property) associated with any activity or any phase that includes storage or transportation of the physical cards.

3. **Inconvenience and Availability:** The inconvenience factor involved in the sequence includes the need to securely store and transport the cards and the time lapse between the time the cards are issued, then ordered and when the card is available for sale at the retail level. Availability relates to the need to stock a large variety of cards at the retailer location, and situations where the card desired by the customer is not available upon request.

The Real Time Prepaid Service Code Distribution system (PSCD) obviates all of the problematic and traumatic issues listed above. The system is portrayed in Figure 2. The system consists of the Airtime Service Provider, the PSCD Data Processing Center at the Central Processing Office facilities and terminals located at the retailers' facilities.
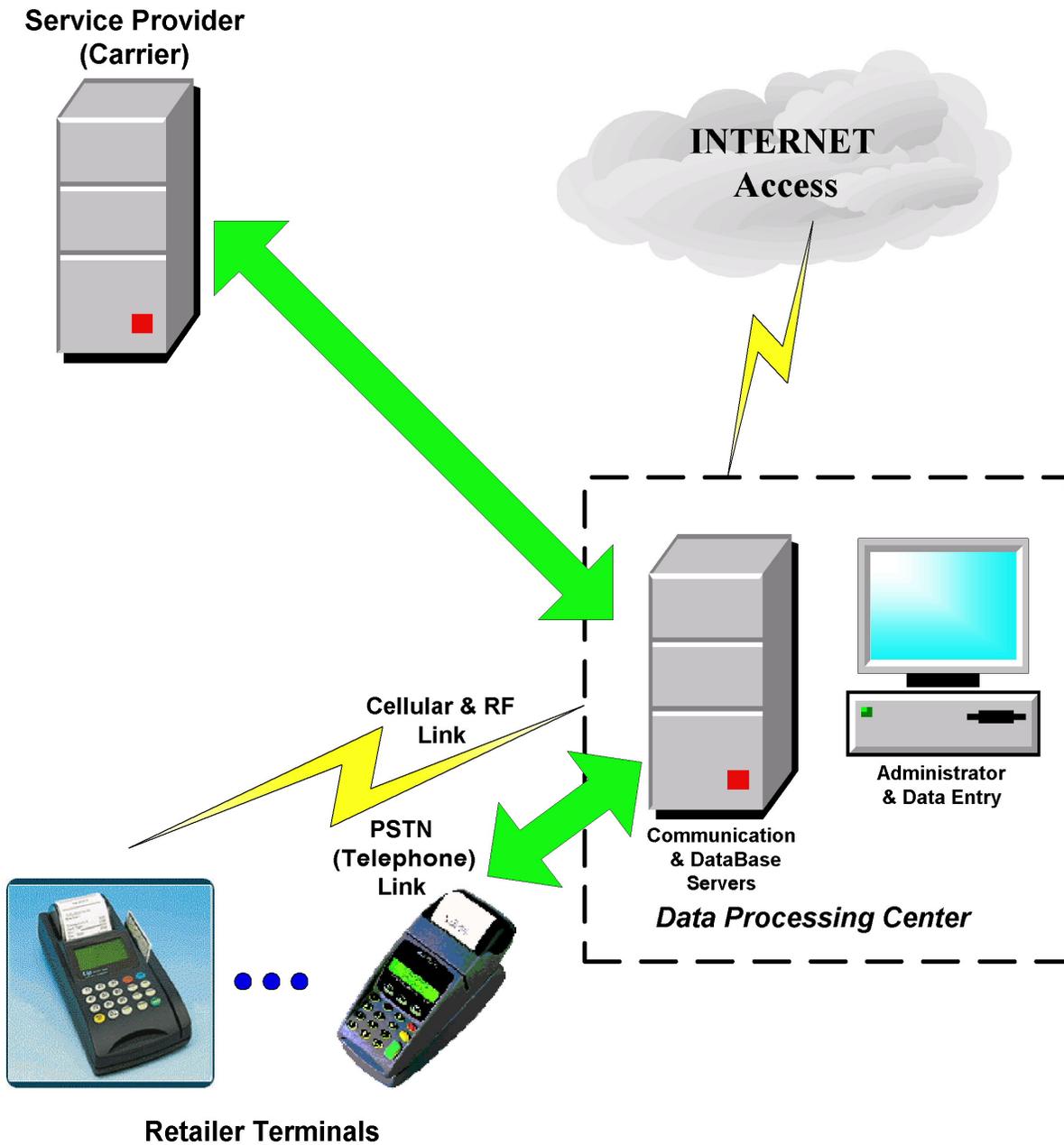
Service Provider
(Carrier)

INTERNET
Access

Cellular & RF
Link

PSTN
(Telephone)
Link

Administrator
& Data Entry

Communication
& DataBase
Servers

Data Processing Center

Retailer Terminals

Figure 2:   PSCD Air-Time Ticket Distribution

The PSCD system supports both code oriented Electronic airtime Voucher Distribution (EVD) as well as top-up functionalities.

EVD System Characteristics
In the EVD mode, the airtime provider issues the unique numeric codes, as before. The codes are transferred to the PSCD Database Server within the PSCD Central Processing Office. The PSCD system is designed to support both retailer terminals that are on-line as well as off-line.

When a customer wishes to purchase airtime privileges, at an on-line terminal, the terminal will initiate a request to the PSCD Data Processing Center. In response the PSCD Data Processing Center will issue an airtime code, drawn from the list of codes in its Database Server. The airtime code will be transmitted via the on-line communications link. The code will then be printed at the terminal, in the presence of the customer, and given to him.

Top-Up System Characteristics
In an alternate implementation, implementing Top-Up features, a customer identification code, associated with the customer's account (e.g., cellular phone number) is keyed in at the terminal, along with the code type selection and the mount paid. Both are transmitted to the PSCD Data Processing Center. The Data Processing Center relays the customer's identification and the amount paid to the Service Provider facility, where the customer's account is credited accordingly. At this point the customer has already received the service ordered. The Service Provider returns a Confirmation Certificate to the PSCD Data Processing Center, which, in turn, relays it to the terminal. The terminal prints the certificate as part of the customer receipt.

The PSCD eliminates the need for airtime cards, their production and processing, transportation and storage as well as all of the derivative logistics. As all of the communications and data retention are secure, there is no risk involved in the distribution of the airtime codes. Additional risk limiting and protective elements are interwoven into the system to protect against fraud and increase personal safety.

The PSCD system, therefore, considerably reduces the expenditures involved in airtime distribution. The benefits are demonstrated at all levels of the distribution hierarchy: airtime provider, distributor, wholesaler and retailer.

Advantages and Benefits of the PSCD System

The PSCD system provides a host of advantages and benefits for all of the parties involved:

Service Providers

Eliminates the need for physical tickets, eliminating printing and manufacturing costs
The system eliminates the expensive physical scratch card, mass produced and individually printed.

Cuts distribution/storage costs.
In EVD, the stock of air codes is delivered to the wholesaler immediately, upon demand or periodically. Delivery is by electronic means and is virtually immediate and absolutely secure. In top-up, the customer account is recharged in real time. In both scenarios, the current distribution network that requires handling and paperwork is replaced. This eliminates the risk factor completely and obviates the need to store stock at both the service provider and wholesaler locations, thus saving the financial overhead and investment in non-productive stock.

Increases security and eliminates risk of theft and fraud.
The stock of air codes is securely stored in computerized environments. These are all under direct supervision of the Service Provider, his distributors and agents. All accesses to the databases involve secure and authorized entry and are recorded.

Reduces threats to safety of Service Provider personnel.
By eliminating the need to transport and store the physical tickets, the threat to the safety of all of the personnel, currently involved in handling the cards, is eliminated.

Enables the introduction of lower and of flexible ticket denominations
This is due to the elimination of the high cost of manufacturing and distribution of the physical scratch card. It is this cost that dictates the relatively high denominations of airtime tickets.

Enables the introduction of promotional ticket denominations
Through the flexibility inherent to the electronic distribution, promotional products can be launched and withdrawn from the market over a short period of time, with minimal costs.

Immediate penetration of new products
Product information is updated on a daily basis. Thus, the time to market for a newly launched product is reduced to 24 hours throughout the system, including the furthest outlets. No high volume production costs, no risks associated with a non-performing new product.

Faster cash flow.
Less paper work, faster settlement processing.
The settlement process can be configured to take place on a daily, weekly or monthly basis at all wholesale and retail levels.

Wholesalers

Cuts distribution/storage costs.
In EVD mode, the stock of air codes is delivered to the retailer immediately, upon demand or periodically. Delivery is by electronic means and is virtually immediate and absolutely secure. Top-Up mode provides zero stock operation. These replace the current distribution network that requires handling and paperwork, eliminating the risk factor completely.

Increases security and eliminates risk of theft and fraud.
The stock of air codes is securely stored in computerized environments. All accesses to the databases involve secure and authorized entry and are recorded. As the codes are not distributed on the tickets, there is no physical peril to the wholesaler or his distributors.

Streamlined Transaction Administration
Providing up to date reports, operations visibility, activity and transaction history and auditing with respect to service types, distributors. The system links to external financial software, creating an integrated financial system.

Reduces threats to safety of Wholesaler personnel.
By eliminating the need to transport and store the physical tickets, the threat to the safety of all of the personnel, currently involved in handling the cards, is eliminated.

Increased flexibility and control over retailer remuneration and commissions
Under computer control, each retailer can be assigned a different table of commissions. These can be easily modified to account for retailer performance and motivate sales. Retailer operation is controlled by credit and other limits built into the PSCD data processing software.

Expands the distribution base
By eliminating the need for physical distribution and reducing distribution costs considerably, the services can be extended to locations that are currently not accessible or impractical.

Enables the introduction of promotional ticket denominations
Through the flexibility inherent to the electronic distribution, promotional products can be launched and withdrawn from the market over a short period of time, with minimal costs.

Enables the introduction of new products and new services from new service providers
Through the flexibility inherent to the electronic administration and distribution, new products can be introduced to the market over a short period of time, with minimal costs.

Immediate penetration of new products
Product information is updated on a daily basis. Thus, the time to market for a newly launched product is reduced to 24 hours throughout the system, including the furthest outlets. No high volume production costs, no risks associated with a non-performing new product.

Faster cash flow.
Less paper work, faster settlement processing.
The settlement process can be configured to take place on a daily, weekly or monthly basis.

Retailers

No stock administration and ordering (done automatically)
The stock gets replenished automatically in off-line systems. In on-line systems, there is no stock at all at the terminal outlet. All stock is retained at the central data-base. In off-line systems, the PSCD terminal connects daily to the PSCD server and replenishes the stock sold the day before, or on demand.

Continuous availability of stock
The automatic stock download and the low stock warning mechanisms ensure that both the wholesaler and the retailer never run out of stock.

Reduced theft and fraud risk
The access to the PSCD terminal is protected through a secure method of identification. Each transaction is recorded and relayed to the central database, thus allowing backtracking and reconstruction of transaction history.

Reduces threats to safety of Retailer personnel.
By eliminating the need to store the physical tickets, the threat to the safety of all of the personnel, currently involved in handling the cards, is eliminated. As there are no physical tickets to steal, the incentive for robbery is minimized.

One contract, many prepaid suppliers
The retailer can choose to distribute products from all of the suppliers registered with PSCD or only from a selected few.

Immediate availability of new products
Every outlet updates its product base daily. The time for a newly launched product to reach an outlet is reduced to 24 hours, even for the furthest locations.

Real-Time evaluation of the service or ticket price
The PSCD system updates the value and sales cost of the product, allowing currency conversion and price fluctuations to be implemented virtually immediately.

Easy configurable stock profile
The stock profile is configurable at product level.

Detailed reporting
The PSCD terminal provides various reports such as: sales, stock on hand, profile, parameters etc.

End Customers

Continuous availability of stock
The client will never encounter the unpleasant "out of stock" situation.

Multiple services and products available at the same terminal outlet
The client can take advantage of the variety of services available at the same terminal. This variety offers optimal selection of a particular service as well as access to multiple services at the same location.

Rewards and prizes
Part of the cost cuts facilitated by the system may be directed back to the client through a rewards and prizes program and via loyalty schemes.

For additional information, please contact:

Dr. Ron Gal-Ezer	**e-mail: rongal@aurora.co.il**
Managing Director	**Tel.: +972-4-8577055**
Aurora Technologies Ltd.	**Cell.: +972-52-2996594**