



WHY PREPAID SERVICES?

Prepaid communications and services continue to be one of the hottest growth opportunities worldwide - with no end in site for the foreseeable future. Mercator Advisory Group forecasts that the prepaid market will top \$236 Billion by 2009. This represents a 43% increase from the \$165 Billion spent in 2005. Even Microsoft has recognized the value of the prepaid business model in generating new revenue from markets that would otherwise be impenetrable with traditional payment models. Attracted by the great success of prepaid mobile phones, Microsoft and AMD entered into a joint venture in 2006 to provide a fully featured PC to customers with who only pay for the time as they use it through the purchase of prepaid activation cards or tokens.

The overall communications industry will benefit from the evolution unfolding in prepaid markets. Prepaid calling cards, prepaid wireless, prepaid wireline, and prepaid Internet - each has a story of remarkable success with tremendous market appeal. New options for communication and accessing information will appear, resulting in a shift in revenue streams and market share and creating billion dollar brass rings for companies that did not even exist a few years ago.

Global Trends

Prepaid service applications are growing because operators are seeking ways to accelerate service creation and usage volumes. When addressing the international needs for telecommunications services and Internet access, prepaid solutions are the best mechanism to accelerate service usage because they address the broadest section of consumers.

Deregulation and privatization of state-owned telephony and Internet services continues to renew global investment and expansion of telecommunications infrastructures - with vast amounts of private capital flowing to provide service to emerging markets. Prepaid services are becoming a preferred, and in many countries a necessary solution to ensure rapid return on investment.

Motivations for offering prepaid services include:

Cash-Based Economies -

Outside the Western World, most countries function in cash-based economies – devoid of credit and billing structures. This constitutes a veritable mandate for prepaid services for telecommunications and Internet providers who need prepaid solutions to expand service and usage on their networks to be economically viable.

Privacy -

Due to the political and religious climates in many countries, privacy is a major consideration, with customers preferring the anonymity of cash and prepaid services.

Predictability of Costs –

Many consumers want more control over their expenditures and are often confused by the sometimes bewildering array of charges they see on their postpaid bills. As a result, there is a strong demand for instant balance notification or a “notice of charge” so the consumer can verify his balance and know exactly what he was charged for the last transaction. When two of the largest Italian wireless companies, Telecom Italia Mobile and Omnitel, introduced prepaid services with the emphasis on convenience and predictability of costs, their user base exploded, with over 70% of new applicants choosing the prepaid option.

Additional Revenues -

As infrastructure is built out around the world, prepaid services will furnish an important source of revenue for telephony and Internet providers as they engage new consumers and provide additional applications that can be enabled by using prepaid technology. For example, iGillott Research forecasts that by 2009 – 40% of Average Revenue Per User (ARPU) will be from data and content instead of voice. These data services include everything from text messaging, ringtones and gaming to music/video clips and interactive entertainment.

Additional Customer Base -

The original basis for prepaid services was to tap into additional consumer segments that for some reason (i.e. age, income, creditworthiness) would not or could not use telecommunication services on a credit-based payment model. In Asia Pacific, for example, many operators lowered credit-assessment criteria to build market share. The result was a massive problem with bad debt. Customer credit problems are of concern to postpaid service providers in all corners of the world. Prepaid services are now being used to ease the financial burdens of the providers, while allowing service to continue and revenue to be generated from these additional customer segments.

Many state-owned enterprises have issued licenses to new service providers to expand the telecommunications and Internet infrastructure — resulting in the following key developments:

- ◆ Large inflow of private capital to fund telecommunications services;
- ◆ Rapid expansion and update of telecommunications infrastructure;
- ◆ Concentrated efforts to improve teledensity in developing countries;
- ◆ Linkage of telecommunications services between countries;
- ◆ Rapid reductions in service pricing in most countries;
- ◆ Rise of Internet service for millions of cash-based users.

The Evolving Marketplace

Broadband-

It is already widely accepted that the future of telecommunications is in data and video, not in voice, and that these data applications will be provided over broadband networks. Paul Budde Communication Pty Ltd. predicts that by 2015, 90% of all telecom revenue will be broadband-based. With the majority of new revenues and new profits coming from broadband

applications, the marketplace will require with an ever-increasing number of providers to meet the demand for new data applications.

As with legacy telecommunication applications, broadband service and content providers will find it necessary to offer prepaid services to make their services viable and accessible to the broadest group of customers. Again, companies looking to participate in the growth in these markets will be better positioned to capture market share if they offer a strong prepaid service solution.

e-Commerce and Money Transfer-

As e-commerce penetrates the merchandise-hungry developing world, consumer transactions will grow exponentially - as online goods and services spur unprecedented purchasing power. Prepaid services will quickly develop into a substantial component of the global e-commerce market. Visa estimates that, on a global basis, US\$3 trillion in payments can better be handled using prepaid payment products, delivering the added convenience and security of everyday payments to more than three billion people worldwide, including those who don't have traditional banking relationships.

Offering prepaid money-transfer cards for the unbanked represents another opportunity to generate significant volume. This service enables cardholders to send and receive money transfers through authorized outlets, a convenience especially popular among immigrants, a high percentage of which send money back to their native countries.

Yet again, companies providing infrastructure with cash-based, prepaid service solutions will be stronger, more profitable competitors.

Mobile Content-

In a recent report on Telecom Predictions, Paul Budde predicts that by the year 2015, 80% of all voice traffic will be based on mobile networks. However, he further predicts that in that same time period up to 65% of all mobile revenue will be generated not by voice, but by mobile data applications. What this means is that as voice becomes a commodity, and it will be the access to value-added services and applications that will attract customers and grow revenue. The evolving digital consumer is driving an always on, anywhere, anytime demand for media consumption, requiring that access to content needs to expand beyond their PC to their mobile phone/device. This is more than SMS and picture messaging. Consumers are demanding sophisticated mobile applications such as gaming, music, information, and Internet. And as usage of mobile media grows, additional revenues will also be generated from mobile advertising targeted at this new generation of subscribers.

A prepaid business model in this environment is beneficial to both the operator and the subscriber. It attracts new subscribers with its easy method of budgeting and controlling expenditures. It benefits the operator financially because they receive payment up front before the service has been used which creates positive cash flow for funding future growth, and it helps to minimize costs to the operator through reduced bad debt.

Market Applications

The prepaid market has plenty of opportunities and challenges. Prepaid service providers need to maintain competitiveness, need to sustain customer loyalty, and need to interconnect with diverse global networks. With the versatility offered by the CPDI's prepaid platform, a CPDI customer can quickly and economically pursue the newest and most advantageous marketing opportunities and niche markets.

The flexibility of CPDI's software systems enables our customers to create or customize their own line of products. Below are just a few sample applications that can be addressed with CPDI's prepaid platform.

Advertising Incentives-

A traditional product or service can be enhanced with the addition of a prepaid calling card. The printed card along with the voice prompts associated with placing the call can contain a customized advertising message.

Broadband/Dial-up Internet Access-

Enables ISP's to generate an additional secure source of revenue by expanding the service and usage of their network by offering Internet access accounts on a prepaid basis.

Child ID Cards-

Parents purchase an ID card for their children so they will always be able to make a telephone call when away from home. These cards can also be customized with pre-recorded informational messages such as medical requirements for quick access by police, fire and medical service personnel in case of an emergency situation.

Corporate Calling Cards/Wireless Accounts-

Corporate calling cards are issued by a company to their employees. These calling cards give businesses a way of effectively managing expenses related to employee access and use of long distance and wireless phone time.

Cyber Café Internet Access-

Users purchase time to access the Internet in a café environment while utilizing the other facilities provided at the location.

Dial Tone or Residential Telephone Service-

Provides telephone service to customers where post pay or credit is not available. Prepaid residential brings customers on line that would not otherwise have telephone service available to them and virtually eliminates any and all billing overhead.

Hotel / Motel-

Prepaid accounts established for hotel guests which, in addition to outbound telephone calls, can be utilized for other hotel amenities such as room service, in-room movie and cable channel fees, restaurants, health spa fees and gift shops.

Kiosk Internet Access-

Enables service providers to control public access to the Internet from remote kiosks in facilities such as airports, train stations and libraries.

Market Surveys-

A method of ensuring increased response to market surveys and collection of user demographics by issuing free long distance calling upon completion of the requested questionnaire.

Mobile Phones-

Users can control their mobile phone bills by prepaying for services. Prepayment also eliminates collecting on negligent accounts and gives the credit challenged a source for mobile services. Additional revenues can be generated by offering value-added services and data applications.

“900” Service Alternative-

A prepay alternative for the pay-per-call industry, providing access programs such as talk lines, informational services and customer support centers. A prepaid product eliminates the problems with billing, collection and associated telephone company chargebacks.

Prison Phone System-

Phone security system that incorporates digital recordings of telephone conversations with the ability for institution personnel to regulate and track inmate calling by amount of usage and destination restrictions.

Promotional Calling Cards-

Promotional calling cards are cards that promote an important event, person, place or thing that generates an interest in the customer to purchase the card for its intrinsic value rather than its utility and use.

Retail Calling Cards-

Prepaid long distance calling cards that are available almost anywhere people shop for goods and services. These cards provide users with convenient long distance and local services at a significant cost savings over traditional services.

Student ID Cards-

Prepaid accounts established for students at academic institutions. These cards can be used strictly for the purpose of placing long distance phone calls or can have multiple uses for purchases at other institutional facilities such as bookstores and cafeterias. If desired, parents can stipulate usage restrictions on the student accounts.

Universal Account-

A product that enables existing customer accounts to be used for multiple retail purposes, such as calling card, Internet access, and mobile phone.

VoIP-

An extremely cost-effective manner of transmitting long-distance phone calls, allowing the provider the means to offer very price-competitive products while still achieving a quick return on investment.

WiFi/WiMAX-

Internet hot spots where users can use their prepaid account to access the Internet from their wireless device.

Distribution Networks

Customer prepaid products can be distributed through any business, group, association, etc. Some examples of distribution networks include:

Retail

Convenience Stores
Retail Chains [department, discount, pharmacy]
Gas Stations
Check Cashing Outlets
Vending Machines

Academic

Colleges & Universities [student, teacher, administration]
Affinity Groups [fraternity, sorority, student union]
Bookstores

Travel and Hospitality

Airports
Bus Terminals
Train Stations
Car Rental Agencies
Hotels & Motels
Travel Organizations [travel agencies]

Governmental

Correctional Institutions
Military Bases
State & Local Agencies

Transportation

Trucking Firms
Truck Stops

Specialty Groups

Credit Unions
Clubs or Associations
Non-profit Organizations [church, charity]

Other

Businesses

Hospitals
Wholesale / Discount Membership Firms [food, office supply]
Payphone Site-Owners

Competing Technologies

There are two fundamental forms of technologies used worldwide for prepaid products - card-based and network-based. Both types of technology offer a number of benefits to the end user and system provider. For example, a primary benefit to the end user is convenience and savings on calling cost, and to the system provider a significant benefit is increased revenue. The following is a brief description of these two competing forms of technologies:

Card-based

In a card-based system, the "intelligence" resides in the card itself, and requires specially equipped payphones that can read the information on the cards. There are three primary card categories:

- ◆ Magnetic-stripe card - Low security cards with an associated high incidence of fraud because of their technology and widespread use. These cards require extensive infrastructure for billing and validation.
- ◆ Optical card - High security payment method that substitutes for currency. They are a sole source card that can only be available from one vendor. The currency value on the card is reduced on a real-time basis during the telephone call by an optic card reader device. When the card value is depleted, the card must be replaced.
- ◆ Chip or "smart" card - Higher security and the most intelligent card of the three. Incorporates stored intelligence on a microprocessor circuit chip that can be inserted into a card or used for prepaid mobile phones. The chip can store data such as financial records, customer information, etc. This technology can be single use [e.g. calling only] or multifunctional [e.g. added uses for vending machines, public transit, parking terminals]; and can be either disposable or rechargeable.

Obstacles to the universal acceptance of card-based technology include the expensive infrastructure of the required proprietary card-reading equipment as well as the lack of international standards and guarded intellectual property rights resulting in incompatibility from one country to the next.

Network-based

In a network-based system, the intelligence is programmed into a remote system or switch. Each account is "credited" and "debited" by use of an identification / authorization number that is controlled by computers at the system level. This type of technology is typically referred to as remote memory or remote intelligence. The primary reason that CPDI believes that the network-based systems are superior is that the "remote memory" intelligence programmed into the system or switch can be accessed by many types of interface – including legacy TDM networks, wireless networks, and IP networks. There are two primary network-based platform categories:

- ◆ Service-node platform - This platform is the one used by CPDI in the development of its prepaid applications. It supports high call capacities, reliable network operations, centralized control, and a distributed modular architecture to enable fast, low-cost expansion into new regions. It typically offers relatively inexpensive start-up cost and a high level of flexibility for customization.
- ◆ Switch-based platform - This platform typically offers high call capacities, reliable network operations, centralized control and centralized call processing. The prepaid software application is integrated with the switch manufacturer's system. Start-up costs are typically costly and often not flexible enough to allow for customization.

CPDI believes the service-node platform offers many more customer-oriented advantages than the competing switch-based platform, particularly in terms of economics and flexibility. The service-node platform developed by CPDI for its prepaid systems provides more flexibility at an affordable cost when compared to the switch-based platform.

CPDI's philosophy is to provide flexible systems linked with ongoing support service and system upgrade programs. Since the telecommunications industry changes so rapidly in terms of markets and technology, CPDI works with its customers to provide them customizable products enabling them to meet a particular requirement or specialized marketing opportunity.

On the other hand, switch manufacturer system providers offer their customers "support services" usually in the form of a costly service agreement. These switch-based software developers might also view a pre/post-pay system enhancement or software upgrade in an entirely different perspective than CPDI would. In terms of system developments, the switch-based system provider is more likely to be primarily concerned with the switch architecture and only secondarily concerned with a particular customer application.

CPDI has an entirely different developmental perspective as indicated above. Flexibility is not necessarily an attribute in the telephone switching system environment. To make an enhancement or an operating system change to a digital switching system could take the manufacturer months to implement. Often times a customer requested change would not be made at all unless it could be demonstrated that the application applies to a large enough customer base to justify expending developmental resources.

CPDI ComControl

Since 1992, CPDI has provided a multi-level, real-time rating and fraud control engine for prepaid billing. With installations in over 35 countries, clients include a wide range of PTTs, independent operators and niche providers. Today, our patented technology is incorporated into ComControl to bridge the way to next generation networks for payment solutions that are fast, flexible and affordable.

ComControl is an integrated platform incorporating CPDI's patented technology for real-time rating and charging of voice and data services across fixed, mobile and Internet transport

mechanisms. With built-in fraud detection and bad debt collection, Triple A functionality, plus the ability to layer applications, ComControl offers the value and simplicity of a self-contained solution.

ComControl allows local and independent service providers to leverage existing investments while bridging next-generation platforms, enabling the same competitive footing as global Tier 1 players for delivering a spectrum of digital services to the on-demand world.

- Wired and wireless phone
- VoIP
- Internet Access
- WiFi and WiMAX services
- Intelligent Network services
- IMS

Support for multi-national signaling variants of SS7 and ISDN, and seamless any-to-any internetworking between TDM signaling and IP protocols such as H.323 and SIP enables delivery of prepaid services to a broad range of end-users served by IP, PSTN and wireless networks. A fully distributed, modular architecture enables fast, low-cost expansion into new markets.

CPDI's unique mix of experience and focus on cutting edge technology has earned CPDI widespread industry respect, and it will maintain its global leadership position in telephony and Internet technology for communication companies by continuing to anticipate, recognize and address the evolving needs of the service provider.

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