Possimo Technologies Slashes Mobile Prepaid Transaction Time by 77% in a More Secure System

Dialogic® SIU Speeds Time-to-Market by Freeing Possimo's Developers from Handling Protocol Details

CASE SUMMARY

Challenge

Mobile minutes in Malaysia are replenished though a system of master distributors and dealers who need a fast, secure, reliable replenishment system to service their many thousands of customers daily. A local mobile operator was using a replenishment system developed in-house and based on SMS. This slow, fraud-prone store-and-forward system was also difficult to access, requiring dealers to memorize and type in lengthy replenishment codes.

Solution

Possimo Technologies has developed a much more robust system for replenishing mobile minutes based on the session-to-session USSD protocol. USSD allows a faster, more secure, menu-based system, which can slash transaction time from 30 seconds to 7 seconds for a savings of 77% on each transaction.

Challenge

Prepaid service is the norm for many mobile customers in Malaysia, a country with a population of 24.8 million in 2007. More than 81% of Malaysians use mobile phones, and prepaid access is very popular and highly competitive. Minutes are distributed through a three-tier system. Mobile operators supply blocks of minutes to master distributors who depend on mobile phone dealers throughout the country to sell the minutes to individual customers. Because thousands of transactions take place every hour throughout the country, a replenishment system that is fast, secure, and reliable is critical.

One of Malaysia's leading local mobile operators with a subscriber base of six million, 80% of whom are using prepaid minutes, had a replenishment system developed in-house based on Short Message Service (SMS) as the main transaction medium. Mobile phone dealers, who access the system each time they service a customer, needed to enter specific codes using their mobile phone SMS function to reload their customers' prepaid accounts. The dealers had to memorize these codes, which were quite lengthy and prone to typing errors. The mobile operator wanted an easier-to-use, faster menu system for the dealers, which would radically reduce (or eliminate) errors.

Since SMS is a store-and-forward system, minutes could easily be stolen from the system. Replenishment was also quite slow, with each customer transaction requiring about 30 seconds. As mobile phone use continues to increase, the burden on the current replenishment system was growing heavier, providing more opportunities for fraud and longer lines of impatient customers at mobile dealer shops, especially at peak hours.

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Solution

Developers at Possimo Technologies, based in Kuala Lumpur, felt they had a solution for the mobile operator's problems – create a mobile minute replenishment system based on the Unstructured Supplementary Service Data (USSD) protocol instead of SMS. USSD is a capability built into the GSM standard for transmitting information over the signaling channels of a GSM network, and USSD is perfect for Malaysia because the country has a GSM network.

USSD is a session-to-session protocol, which provides a faster, more secure connection than SMS store-and-forward because the connection is individual and direct. In addition, USSD allows the cumbersome, error-prone SMS codes to be replaced with an interactive menu, something very important to dealers.

Modular Architecture Allows Easy Scalability

Possimo's solution is a multi-channel electronic system that complements the traditional physical prepaid vouchers already in use. The architecture of the new carrier-grade solution is modular to allow simple scalability and redundancy that is easy to implement.

Replenish verification on a customer's mobile phone is handled by USSD, and PIN numbers provide additional security. The new system allows both menu-driven and direct-dial USSD, and generates summary reports, also via USSD. Finally, the new system supports both Linux and Solaris so that it can run on standard high-density, carrier-grade servers.

SIU Works Flawlessly in Transaction-Intensive Environment

Within the new replenishment system is a USSD gateway, which houses the USSD applications that "talk" to the main transaction engine that Possimo developed. Because SS7 is used to pass transactions through the USSD gateway, Possimo needed reliable SS7 equipment that could be added to its system easily, and chose the Dialogic® Signaling Server with the Signaling Interface Unit (SIU) option and a Message Transfer Part (MTP) stack, also from Dialogic.

Possimo found the Dialogic® SIU easy to integrate, and its robust support of industry-standard telecom protocols freed Possimo's programmers from having to worry about the interoperability of these low-level protocols, speeding time-to-deployment for Possimo's new system. And even though Possimo had never used Dialogic® equipment before, integration was straightforward and took less than two hours. The SIU has worked flawlessly through testing and deployment in a transaction-intensive environment.

Results

In late October of 2007, Possimo began to successfully deploy its new system with 2500 dealers who generate about 100,000 transactions per day, and the mobile operator plans to extend the system to 5000 dealers and 200,000 transactions a day by the end of March 2008. The entire system is designed to serve 10,000 dealers and handle 500,000 transactions per day, and capacity can be increased easily by expanding the number of links supported or adding Dialogic SIU servers.

Because of the importance of the system to generating operator revenue, 100 dealers were chosen to test the new Possimo system under two master distributors before wide-scale deployment was approved. This testing phase allowed the master distributors to familiarize themselves with the new system and gather feedback on the usability of the new system interface from their dealers. Statistics were also gathered on the capabilities of the system.

Possimo's New System Very Efficient

Extensive performance and stress testing revealed that the new system was very efficient. While Busy Hour Call Attempts (BHCA) for the system were measured at 115,000 BHCA, the number of transactions per second (tps) more than tripled from 10 tps with SMS to 33 tps with USSD. Total replenishment time was reduced from 30 seconds with the SMS-based system to just 7 seconds with the new USSD-based system.

Familiarizing the dealers with the simpler USSD menu system is also much faster, taking only a few hours compared to the 1 to 3 days previously required for the SMS-based system. Training is no longer required on the use of SMS commands and no codes need to be memorized. Also, users have a choice of menus, which can be enhanced on the system without dealer intervention.

Most importantly, faster transaction time means that more customers can be served much more quickly without harried sales people and long lines of impatient customers, creating more revenue and better price/performance for the operator, distributors, and dealers — and much happier, more loyal customers.

About Possimo Technologies

Possimo Technologies Sdn Bhd is a software development company, which specializes in building OSS/BSS applications for the telecommunications industry. Set up in 2005, the company, which is based in Kuala Lumpur, Malaysia, now has 15 full-time personnel specializing in SS7 and IP applications.

About Dialogic Corporation

Dialogic Corporation is a leading provider of world-class technologies based on open standards that enable innovative mobile, video, IP, and TDM solutions for Network Service Providers and Enterprise Communication Networks. Dialogic's customers and partners rely on its leading-edge, flexible components to rapidly deploy value-added solutions around the world.

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