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SAS® BIS Best Practices At CMBC Credit Card Center
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ABSTRACT

The credit card market is booming in China. Most Chinese Commercial Banks are issuing cards as fast as they can. At CMBC we are facing the tradeoff between market growth and the associated market risk. Because of the large volume and potential risk, there is a need a robust and flexible architecture to manage the historical data model future scenarios.

CMBC has designed a three layer architecture to address these business opportunities. This paper will first outline our business environment then touch on the three layer design to demonstrate its flexibility.

 CMBC is the first national joint-stock commercial bank primarily held by non-public-owned enterprises in China. As at June 30, 2008, CMBC had total assets of RMB 1,062.2 billion, net profit of RMB 6.046 billion, total deposits of RMB 760.404 billion, total loans of RMB 612.051 billion. Within CMBC SAS is used extensively not only to deliver KPI starting with CEO/CFO and down through the bank but also by managers and analysts who access SAS data both through the web and through more traditional SAS interfaces.

1   CREDIT CARD MARKET IN CHINA

Most merchant banks that have been allowed to do business in global China have been doing credit card business since Guangdong Development bank issued credit cards in 1995. By the end of Jun 30, 2008, there were 130 million credit cards with assets of RMB 693 billion; this was an increase of 83.6% and 68.45% respectively compared to Jun 30, 2007. Going along with this growth were a number of issues facing the issuing banks:

- many inactive cards ,

- many sleepy customers,

- competitive credit card market,

- no tools to measure each customer's risk and contribution,

- no timely KPIs,

- how to keep costs down and improve revenue ,

- and so on.

Bankers urgently needed a robust and flexible tool set to manage data, massage the data into useful information, and finally developing score cards to better analyze and understand customers. In this paper I will review how CMBC addressed these issues, starting with our physical architecture

2   PHYSICAL ARCHITECTURE

Analysts and other report users had to rely upon batch processing to produce the information they were seeking. As business expanded more and more batch jobs were being run; this lead to more load on the server and slower turn-around. Finally, the data being accessed were not the most current.
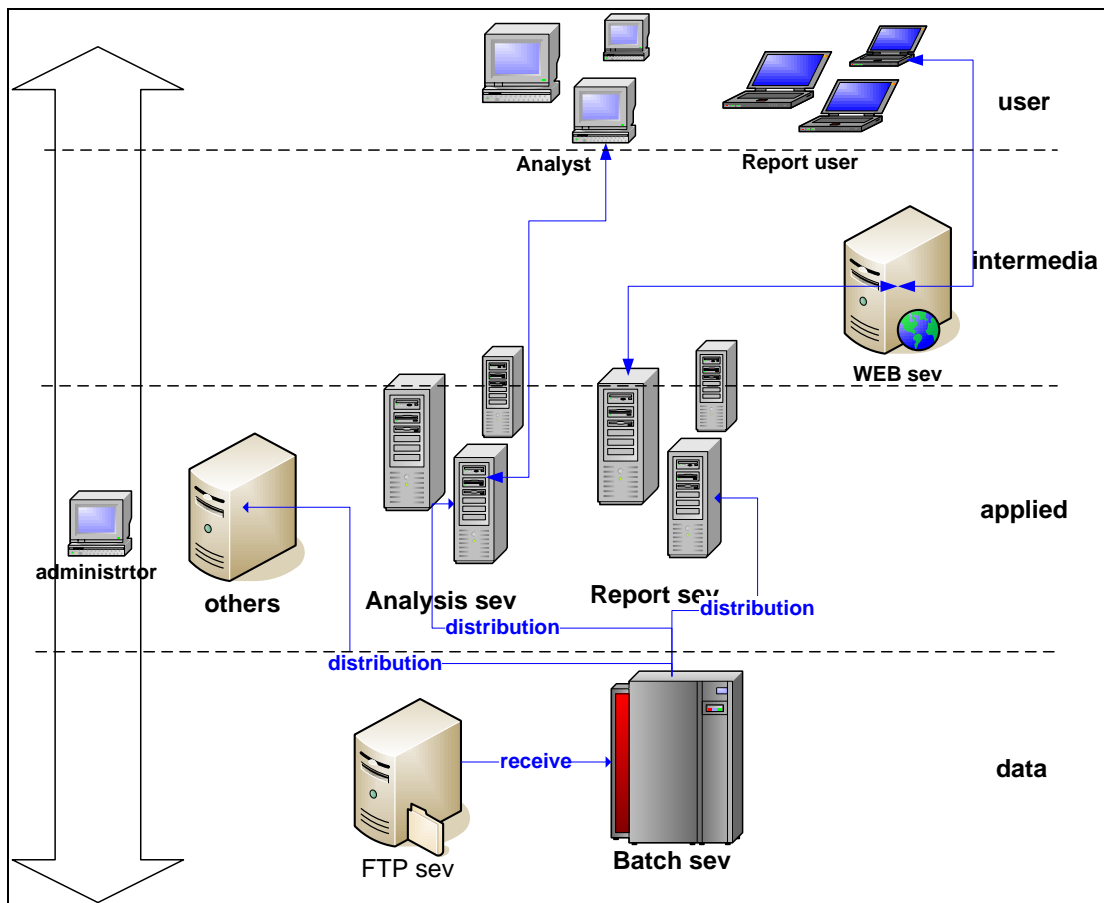
Figure 1. The Physical Architecture

In order to solve this problem, we designed the physical architecture. It ensures that not only each type of user but also the batch sever have sufficient and steady resources to perform properly. In addition it is designed so each sever can receive the latest data from batch sever quickly every day.

   To accomplish this, each day the credit card system, as well as other business systems, send data to the FTP server; the batch server automatically gets the data from the FTP server. When the batch server receives new data it starts an ETL process. In addition, the batch server will start application jobs once all the necessary conditions are in place. After finishing each job, the batch sever sends the results to the analysis server, the report server and other servers automatically.

3   LOGICAL ARCHITECTURE

As the bank increases its business, more business systems need to be developed and existing business systems need to be modified; as a result we had to add and modify some programs (PGMs) at the FTP, and DDS layer. In order to easily modify and add PGMs, a flexible logical system architecture is essential.
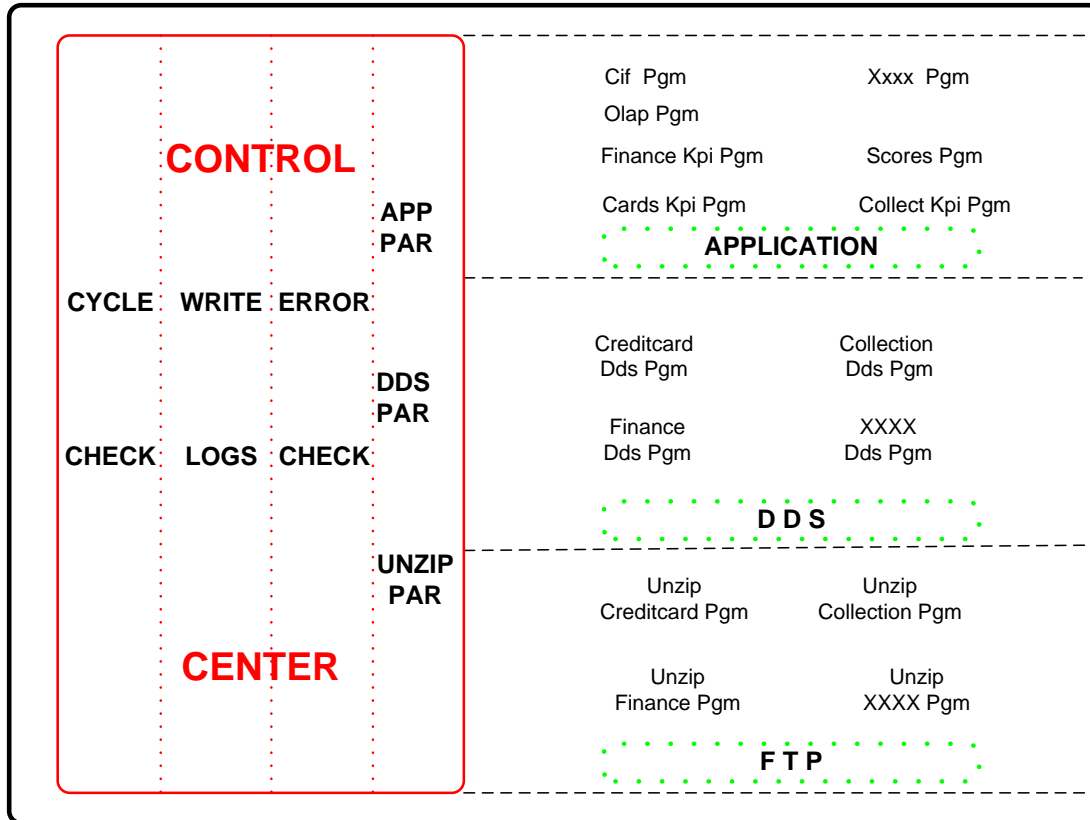
Figure 2. The Logical Architecture

The core of the SAS application is the "control center", including "cycle check", "write logs", "error check" and "par" (unzip par, dds par, and app par).

- "Cycle check" automatically checks which jobs of FTP\DDS or application layer can run once at a fixed time.

- "write logs" writes logs of any job of any layer.

- "error check" checks whether an error condition exists after any job run.

- "par" records the running condition, finished or unfinished of every PGM.

When "Cycle check" finds that xxx.zip file from a business system exists on the FTP sever and "unzip par" indicates the job hasn't run, then the FTP layer unzips it and then writes a 'job done' entry in "unzip par".

When "Cycle check" checks "unzip par" and finds that some business data are unzipped, it checks "dds par" to see if the data of the DDS are loaded; if the data are not loaded, the DDS layer absolutely loads the xxx.file data and then write a 'job done' entry in "dds par".

When "Cycle check" checks "dds par" and finds that business data are available and it will check "app par" to see if the appropriate application has been run; if the application PGM has not been run, the APPLICATON layer runs the job and writes a 'job done' event in "app par".

This logical design ensures each layer is independent yet able to communicate with other layers through the "par". In this way the overall system can still work even when there is a failure in any job.. New jobs can be easily added to the system through the parameter configuration.

4   MAIN APPLICATION PROGRAMS

5   KPI PGM\COLLECT KPI PGM\FINANCE KPI PGM\XXXX KPI PGM

Given the very competitive credit card market in China, the CEO, the CFO and senior managers need to have the latest business information as soon as possible. To ensure timely and accurate business indicators we designed a series of KPI PGMs such as:

- Cards
- Collect
- Finance

to meet the business requirements. By now, every day it produces about 250 KPIs that is triple and running time is only half than before. Kpis supports decisions and business development definitely and satisfies leaders and bankers.

These PGMs run daily and produce the main KPI reports that are accessed by different levels of management. Access to the indicators is through a SAS portal, as seen below.
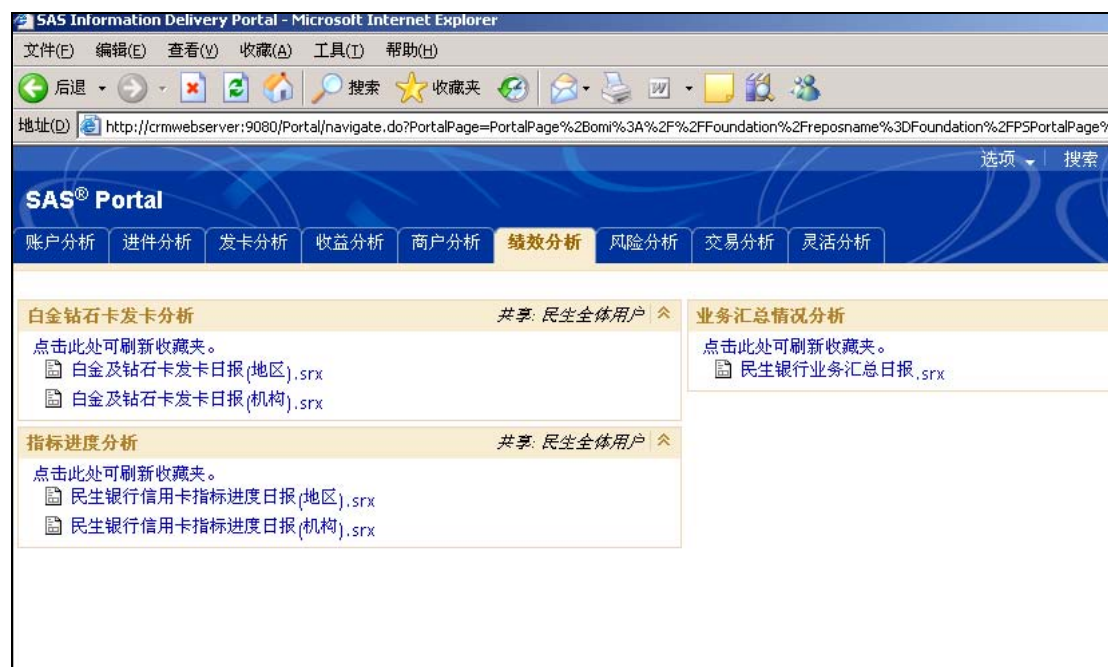

Figure 3. The SAS Portal

6   SCORES PGM

SAS is used to produce scores to support business system and to monitor the model stability.

Before producing scores pgm, we have model building team to develop score model using SAS also. During building model, we try several statistics model such as logistic aggression, linear aggression, decision tree and choose logistic aggression output by comparing different model output.

The Scores PGM produces application, behavior collection, and other scores for every customer; these scores are sent to related business systems once a month. At the same time, analysts can analyze of the impacts of business policy and decisions using the scores. The model can be tuned or rebuilt based upon the analysis. The model scoring is accessed through SAS Enterprise Guide.

Use of the scoring, it not only decreases bad debt rate significantly, but also improves customer active rate and efficiency, decreases cost at the same approval rate.
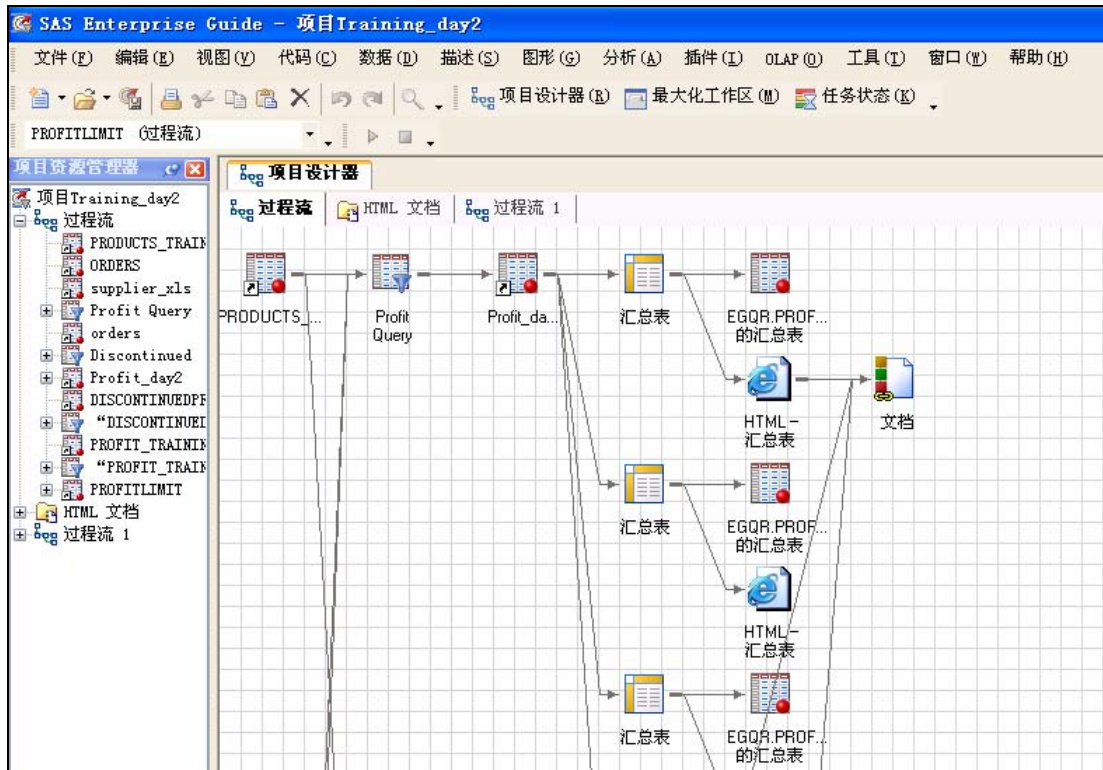
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Figure 4. Using SAS Enterprise Guide to access the model

7   OLAP PGM

In China, many business analysts cannot write custom SAS code to access data to analyze business problems; as a result the SAS OLAPOLAP tools are very helpful and indispensable for them.

The OLAP PGM chooses KPIs and dimensions that are analyzed most often and produces SAS OLAP cubes monthly, analysts can access through SAS Web Report Viewer easily and effectively.

Now analysts can freely get the information they need from OLAP by selecting KPIs and dimensions real-timely, but they have to wait at least 1-2 working day before.

Figure 5. Using SAS Web Report Viewer to Access Cubes

8   CIF PGM

As the call centre receive more and more calls from customers a set of rules to help assign call priority based on contribution and risk is indispensable.

The CIF PGM calculates every customer's contribution from the score data generated in "scores pgm". Using these results it sets up a priority strategy for customer call ins. This priority strategy is sent to the call centre monthly where it is used by the help operators.

Now it reduces call centre operation cost, furthermore increases top customer satisfaction rate significantly.

CONCLUSION

In conclusion, SAS® BIS has not only successful practice and solves the bankers facing urgent problems such as manage data, massage the data into useful information, develop score cards to at CMBC, but also minimize the cost and difficulty of keeping, modifying, adding. Furthermore, it has more and more applications in business such as pricing by risk, performance checking, auditing. With more and more familiar and understanding of bankers, it's no doubt that SAS will have more helpful at CMBC.

CONTACT INFORMATION

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