MHB-GRGBANKING INTEGRATED

SELF-SERVICE

IMPLEMENTATION PROPOSAL

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NOTICE

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Document history

Prepared by	Release Date	Change Description
GONG MINGHUI	12 May 2013	Whole documentation write for MHB ATM Project

1 MHB Bank Card Business Overview and Plan

1.1 MHB Background Introduction

MHB is one commercial banks who own near 200+ ATMs from 2005 on and Link to it's own ATM network with FEEL Switch as the ATM Switching Software. Within few year's development, the service to bank customer base on cards improved day by day.

Card Product from MHB Bank
- MHB Debit Cards issued by TICIS

1.1.1 Card Business Scope by ATM Network

The current acquire card media type accepted by the ATM is listed below:
- Accept On-us MHB Debit Cards through own Network
- Accept Off-us Domestic SmartLink Cards through SmartLink Network
- Accept Off-us Domestic BankNet Cards through BankNet Network
- Accept Off-us International Visa Cards through Visa Network
- Accept Off-us International Master/American Express/JCB Cards through SmartLink Network

The current issue card media type accepted by the off-us ATM is listed below:
- Accept On-us MHB Debit Cards from off-us ATM through BankNet Network

Transaction List Table for MHB

	No		MHB On-us			Domestic[1]		Intenational[2]	
	No	Transaction Type	MHB Cards	VISA	MCI	Acq	Iss	Acq	Iss
A T M	1	Balance Inquiry		N/A	N/A				
	2	Cash Withdraw		N/A	N/A				
	3	PIN Change		N/A	N/A			N/A	
	4	Funds Transfer		N/A	N/A			N/A	
	5	Cash Deposit		N/A	N/A	N/A		N/A	
	6	Envelop Deposit		N/A	N/A	N/A		N/A	
	7	Mini Statement		N/A	N/A			N/A	

8	Prepaid Card		N/A	N/A	N/A		N/A	
9	Bill Payment		N/A	N/A			N/A	N/A
10	Reversal		N/A	N/A				

[1] Right now to MHB there is 2 payment network, one is SmartLink and the other one is BankNet

SmartLink online Transactions

- Balance Inquiry

- Cash Withdraw

- Funds Transfer between one bank's cards

- PIN Change

- Mini Statement

- Bill Payment

- Reversal

BankNet Online Transactions(MHB as both acquire and issuer)

- Balance Inquiry

- Cash Withdraw

- Reversal

[2]Right now to MHB only acquirer of international cards, visa cards will go to Visa network and the other cards will go through SmartLink

1.1.2 IT Network Structure
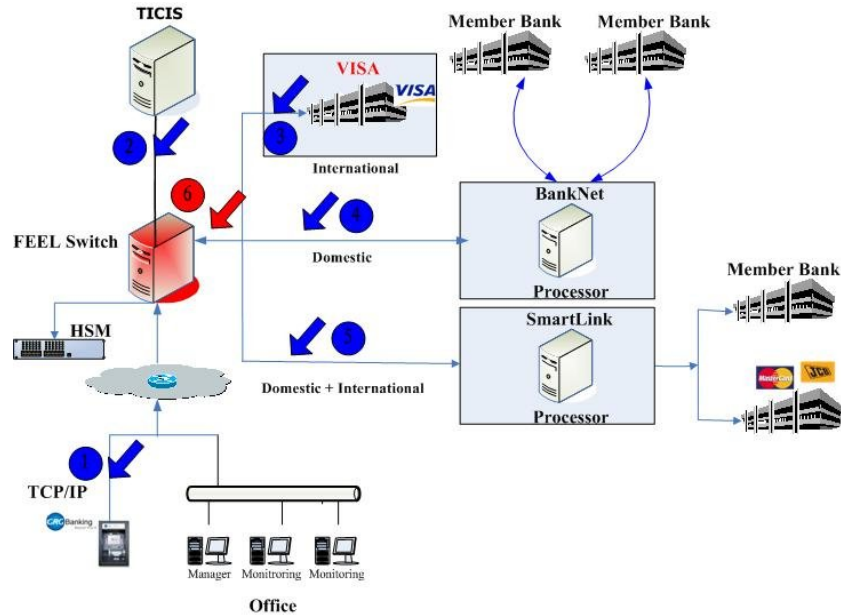
The solution help MHB bank resolve:

1, Resolve domestic card issue and card acquire on on-us ATM and off-us ATM

2, Resolve international card acquire on on-us ATM

What need to improve is:

1, Upgrade FEEL Switch from current version 2.6 to latest version 3.1
2, Upgrade to manage the system by web page

1.1.3 Requirement from MHB for 2013

The requirement from MHB Bank is upgrade ATM Switching Software from FEEL Switch 2.6 to 3.1 and make sure keep old function as before:

1, Connect to TICIS for on-us Debit cards
2, Connect to SmartLink for domestic cards as both acquirer and issuer
3, Connect to BankNet for domestic cards as both acquirer and issuer
4, Connect to Visa for international cards as both acquirer and issuer
5, Connect to MasterCard/American Express/JCB go through SmartLink for international cards as acquirer only

2 Solution Proposal from GRGBanking

2.1 What's the Change in 2013

To meet the development requirement from MHB and what GRG can do will be:

1, Help MHB setup FEEL Switch 3.1

2, Help MHB certify all card business base on new platform FEEL Switch 3.1

3, Help MHB finish cash deposit business base on cards or without cards

4, Help MHB finish the inter-transfer with on-us or off-us cards

2.1.1 Card Business Scope by ATM Network

The current acquire card media type accepted by the ATM is listed below:

- Accept On-us MHB Debit Cards through own Network
- Accept Off-us Domestic SmartLink Cards through SmartLink Network
- Accept Off-us Domestic BankNet Cards through BankNet Network
- Accept Off-us International Visa Cards through Visa Network
- Accept Off-us International Master/American Express/JCB Cards through SmartLink Network

The current issue card media type accepted by the off-us ATM is listed below:

- Accept On-us MHB Debit Cards from off-us ATM through BankNet Network

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	3	PIN Change		N/A	N/A			N/A	
	4	Funds Transfer		N/A	N/A			N/A	
	5	Cash Deposit[1]		N/A	N/A	N/A		N/A	
	6	Envelop Deposit		N/A	N/A	N/A		N/A	
	7	Mini Statement		N/A	N/A			N/A	
	8	Prepaid Card		N/A	N/A	N/A		N/A	
	9	Bill Payment		N/A	N/A			N/A	N/A
	10	Reversal		N/A	N/A				
	11	IBFT- Acc Inquiry		N/A	N/A			N/A	N/A

	12	IBFT[2]		N/A	N/A			N/A	N/A
	13	IBFT Reversal		N/A	N/A			N/A	N/A

[1] Cash deposit from ATM, with cards and without cards

[2] IBFT include transfer between on-us cards and off-us cards, follow the BankNet transaction flow, get reference <Spec v1.5_Final.pdf> Page 29 ~ Page 37

2.1.2 3rd Change or Cooperate List

There is few interface will be upgrade on both the ATM and CMS-TICIS base on BankNet Spec:

ATM online Transactions

- IBFT-Acc Inquiry

- IBFT

- IBFT - Reversal

- Cash Deposit

- Cash Deposit Confirmation

CMS Online Transactions

- IBFT-Acc Inquiry

- Cash Deposit

- Cash Deposit Confirmation

2.1.3 Software and Hardware List

Software List

Linux Platform for FEEL Switch:

Item	Reference
Operating System	Red Hat Enterprise Linux 6.2 – 64Bit
Database	Oracle 11g or higher version – 64 Bit
Software Platform	FEEL Switch 3.1 Package - 64 Bit

Hardware for 100-500 Terminal

Server	Usage	Model	Software	Configuration	Num
Storage (O)	**Database's Data FEEL Switch's Data**	IBM DS3400 Express	HA Software • Heartbeat for Linux • IBM PowerHA for AIX	2 Gbps FC, 146 GB/10K E-DDM Fiber Cable 5m Multimode DS3400 Windows Host Kit DS3400 Mod 70 2-Storage Partitions Activation Field Integrate DS3400 Power Cord 250V/10A	1
DB Server (O)	**Database**	IBM x3850 M2	Oracle 10g Enterprise	CPU *2 Dual Core Intel Xeon Processor X7400 Memory: 8 GB Disk SAS: 146G*2	1
Online App Server (M)	**Realtime (Primary) Realtime (Backup)**	IBM x3850 M2	Linux AP5 Two-machine Cluster Oracle 10g Enterprise	CPU *2 Dual Core Intel Xeon Processor X7400 Memory: 8 GB Disk SAS: 146G*2	2
Office App Server (O)	**1: Mgmt Console 2: Merchant Mgmt 3: Card Mgmt**	IBM x3850 M2	Linux AS4 JDK 1.6	CPU *2 Dual Core Intel Xeon Processor x7400 Memory: 8GB Disk SAS: 146G*2	1
Client (M)	**1: Configurator 2: IE Browser for Web**	PC	Windows XP IE6.0	CPU: P4 2.0G or higher Hard Drive Disk: 80G Memory: 2G Pixel: 1024 * 768	N

Notes:

1, (O) mean optional and (M) mean mandatory, Storage is optional, if need HA it will become mandatory

2, DB Server is optional and could be installed together with FEEL Switch Realtime in one same Host

3, Office App Server is optional and could be installed together with FEEL Switch Realtime in one same Host

4, Client is normal office PC

2.1.4 Version difference between 2.6 and 3.1

FEEL Switch 3.1 VS FEEL Switch 2.6			
Catlog	Item	v 3.1	v 2.6
Platform	Easy to Deploy	√	×
Online	ATM Acquirer (ISO8553)	√	√
	ATM Acquirer (NDC+)	√	√

	POS Acquirer	√	×
	BankNet Acq & Iss	√	√
	SmartLink Acq & Iss	√	√
	CUP Acq & Iss	√	√
	VISA Acquirer	√	√
	MC Acquirer	√	√
	JCB Acquirer	√	√
	Debit Card Authorization	√	×
Console	Terminal Management	√	×
	Key Management	√	×
	Event Management	√	×
	System Monitoring	√	×
	Device Monitoring	√	×
	Information Inquiry	√	×
	Risk Management	√	√
	Report Management	√	×
	Merchant Management	√	×
	Card Issue Management	√	×
	Access Control	√	×
	Log Analysis	√	×
	CUP BOAS (Base on Web)	√	×
	VISA BOAS (Base on Web)	√	×
	BOAS (Base on Window)	×	√
	System Management	√	×
Performance	TPS	300	100
	ATM/POS(8583) Terminal	3000	1000
	ATM(NDC)Terminal Connection	1000	1000
Sability	MTBF	8640	4320
Non-Stop	Terminal Change without Restart	√	√
	Card BIN Change without Restart	√	×
	Hot Card Change without Restart	√	×
	Terminal Key Change without Restart	√	×
	Status of Module	√	√
	Question Event Report	√	×
	System Exception Report	√	×
Security	Racal	√	√
	SafeNet	√	√
	Thales	√	×
Portable	ReadHat Linux	√	√
	IBM AIX	√	×
	Windows	√	×
	Oracle	√	√

|			
	Mysql	√	×
Expansibiltiy	C/C++ 2nd Develope	√	√
	Perl dynamic Devlope	√	×

3 Project Implementation Proposal

3.1 Project Organizational Structure

3.1.1 General Architecture

To successfully implement the project, both GRGBanking and MHB should establish the respective Project Teams, and should also establish a Project Leadership Team formed by the project supervisors and experts committee of both parties to be responsible for the significant decision-makings in relation to the project and the monitoring of the progress.

Organizational structure of the Project Team is as shown in the following chart:
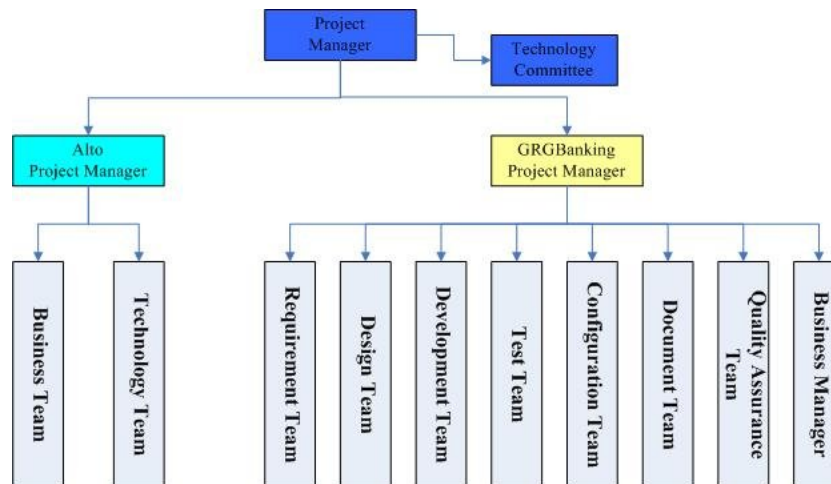
Project Manager has the most important role during the project implementation process. Both GRGBanking and MHB should designate the project personnels to fulfill such roles and responsibilities.

(1)   The responsibilities of Project Manager of GRGBanking

The Project Manager of GRGBanking will be total in charge of the entire Project activities and is responsible for all liaison, work coordination with MHB, and reporting the project progress on a regular basis. He is responsible successful completion. He hands over before the UAT (User Acceptance Test) of the application system, and the hand-over of the successfully completed project to MHB, the Project Manager of GRGBanking should also act as the overall communication channel between GRG and the client.

(2)   The responsibilities of Project Manager of MHB

The Project Manager of MHB should act as the communication channel between the MHB and GRGBanking. In accordance with the requirements of the Project Team, within the time frame agreed by both sides, the Project Manager should assist to collect and provide the business-related information and data, and accord approval and decision as need arises. In addition, the Project Manager should also be in charge of the management of the project acceptance and take-over work.

3.1.2 Project Team from GRGBanking

All roles of the Project Team will be fulfilled by those full-time engineers with appropriate experience. The division of responsibility between different roles is as follows:

(1) Project Director (1 person)
(2) Technical Committee (Several Persons)
(3) Project Manager (1 person)
(4) Requirements Management Team (Several Persons)
(5) Testing Team (Several Persons)
(6) Project Documentation Team (Several Persons)
(7) Commercial Manager (1 Person)

3.1.3 Project Team from MHB

GRGBanking suggests that MHB will constitute a full-time Project Team to involve in the project to coordinate all activities. The Project Team should provide necessary information on the business processes to GRGBanking so as to develop an effective system which can be developed to cater to the needs of MHB. Collaboration will enable efficient knowledge transfer and the transition from development stage to operation stage smoothly. This can lower the maintenance risks after the system is put into operation.

GRGBanking recommends that the Project Team of MHB should consist of the following posts:

(1)   Project Manager (1 Person)

As the representative and liaison contact of MHB, the Project Manager should cooperate with the Project Manager of GRGBanking to resolve the issues occurring during the project implementation. He should establish a cordial working relationship between the staff of MHB and the Project Team of GRGBanking during the entire project implementation cycle,

(2)   Business Team (2-3 Persons)

The Business Team should provide a detailed requirement of the business needs. This will be the basis for the Requirements Specification document and the whole project design. The team should coordinate with GRG Project team during all the stages of the project to ensure the implementation of the system that would satisfy the needs of the business domain. Their fuctional and professional expertise will enable to design, develop and implement an efficient system which will meet the business needs of MHB.

(3)   Technical Team (Several Persons)

The Project Manager of the MHB should constitute a Technical Team which will be taking over the system after successful completion of project implementation. The Technical Team should participate with the Project Team during entire implementation period. They would be imparted technical training on the system. They will be responsible for day-to-day operation and maintenance of the system after the implementation.

3.2 Project Implementation Schedule

The FEEL Switch is proven quality products from GRGBanking and it is a product of our long standing experience and R&D efforts.

Lab Development and VPN Remote testing (2 W~1 M)	Onsite Insde MHB UAT and Certification (1 Month)	Cert and Launch (2 Week)

GRGBanking will implement the new system in three (3) steps as shown in the flow chart. GRGBanking will spare all efforts to install this system which will enable MHB to switch over to new system form its legacy system in the shortest time. And MHB can derive the benefit of the new system in the shortest period.

4 Project Implementation Plan (Job List)

Party A: MHB   Paryt B: GRGBanking

No	Time	Task	Description on working	Time
1	T-30	**Upgrade Plan and Preparation**	1) Party A need work on: ● Hardware and Software Prepare, like the server and OS&DB ● Ready on testing environment, like SmartLink Network and BankNet Network ● Ready on one testing ATM for testing ● Ready on one HSM for testing ● If possible open VPN to Part B on testing environment (Optional) 2) Party B need work on: ● LAB FEEL Switch upgrade develop and test with ATM and MHB TICIS base on MHB project archive ● Work out testing case cover all ● Migration management function to Web Console ● Finish the connection between ATM and FEEL Switch 3.1 and MHB TICIS System ● Finish the connection between FEEL Switch 3.1 and SmartLink	2W 1M

				● Finish the connection between FEEL Switch 3.1 and BankNet ● Finish the connection between FEEL Switch 3.1 and VTS ● Generate the testing log file	
2	T+0	On-site Testing Environment Setup	1) Party A need work on: ● Make sure all the hardware and software for testing is ready in step 1 ● Discuss with party B about the requirement 2) Party B need work on: ● Install the software environment inside MHB ● Make one ATM working with FEEL Switch and connect to MHB TICIS CMS ● Finish the connection between FEEL Switch 3.1 and SmartLink ● Finish the connection between FEEL Switch 3.1 and BankNet ● Finish the connection between FEEL Switch 3.1 and VTS ● UAT on all the card business from ATM	1M
3	T+15	Launch and Live And User Training	1) Party A need work on: ● Make sure all the hardware and software for production is ready in step 1 ● Finish the installation of OS and DB 2) Party B need work on: ● Install the FEEL Switch 3.1 software environment in production server ● Move to live ● UAT on live	2W

5 Hardware and Software Function List

5.1 FEEL Switch 3.1 Package to MHB

I. Software		
SN	Product	Functional Module

1	**FEEL Switch - Platform**	**Runtime and Container** - Encapsulated System Resource Management - In-Memory Financial Transaction Management - Routing Controlling and SAF Management - Concurrent processing - Load Balance and Fail Tolerance **Common Library** - Communication Management - Message Processing and Security Management - Common and Reusable Function Library - Toolkits for Technical Engineers including Simulators
2	FEEL Switch - ATM Handler	Common Module - ATM Connection Support (NDC+) - Key Management - Multi-Institutional Acquirers Support - 3DES and HSM Support - ATM Connection Template for NCR - HSM Connection Template for Safenet, Racal, Atalla ATM Terminal Online Transaction - Balance Inquiry, Withdrawal, PIN Change, Transafer, Deposit, Reversal - Utility Payment EOD Processing connection - 500 units ATM connection license
3	**FEEL Switch - ATM Acquiring Management Module**	Common Module - Base System Configuration - ATM Terminal Management - Customer Service Queries - Monitoring System Health - SMS and Message Notification Online Customer Services - Transaction Inquiry - SMS and Notification Management - Transaction Reconciliation Risk Management - Hot Card Management - Transaction Limitation Management - Abnormal Transaction Monitoring and Confirmation Reporting - Transaction Statistical Report - Terminal Settlement Report
4	**FEEL Switch - 3rd Host Interface**	**Connection Interface with Card Issuing Banks** - TICIS

5	**FEEL Switch - Acquiring Gateway**	**Common Acquiring Gateway for Domestic & International Payment Network** - SmartLink - BankNet - VISA
6	**FEEL Switch - Issuring Gateway**	**Common Issuring Gateway for Domestic & International Payment Network** - SmartLink - BankNet

II. Optional Module		
SN	**Product**	**Functional Module**
7	**FEEL Switch - Settlement**	Settlement process and fee calculation - File Generation - Settlement Adjustment - Flexible file format and integration
8	**FEEL Switch - Dispute Management**	Dispute management - Dispute case management - Claims management - Dispute processing
9	**FEEL Switch - HA**	High Availability and Disater Recovery - Cold backup

III. Implementation		
1	**Implementation**	**Site-Implementation** - Customization - SIT & UAT - Operational Traning & System Maintenance Training
2	**Other**	**Transportation charges & Local Accommodation charges of GRG implementation engineers**

IV. OS / DataBase / Hardware		
1	**Application Server**	**Server for FEEL Switch Platform, ATM and ATM Acquiring Management System** - IBM System x3650 / IBM System x3850 M2 (proposed for <500 ATM) - Red Hat Enterprise Server AS 6.2 installed
2	**Database Server**	**Server for Database** - IBM System x3650 / IBM System x3850 M2 (proposed) - Oracle 11g Standard Edition
3	**HSM**	**HSM** - Safenet / Racal / Atalla / 3rd Party HSM
4	**Other**	**Other Physical Infrastructure**

V. Maintenance after warranty		

- Annually maintenance cost by GRGBanking
- Transportation & accommodation charges for GRGBanking engineers