

SmartMfT :

A Simputer & Smart card based Terminal
for
Micro finance

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SmartMfT is a Simputer & Smart card based solution that can be used by field officers of a micro finance organisation to monitor & manage the loan accounts of self-help groups (SHGs) or members – either as individuals or as members of a SHG.

Business Processes of MFI

The typical set of business processes of an MFI are described below:

Loan approval: A committee constituted for this purpose meets regularly, scrutinizes the received applications, discusses the merits of the case and decides which SHG or member should be given the loan.

Loan disbursement: The MFI or bank will either prepare the cheques or ready the cash for the loan amount and hand them over to the Field Officers to disburse to the SHGs/Members managed by them.

Loan repayment: The SHGs/Members may remit the EMIs by cash or cheque. The Field Officer may facilitate this transaction.

e-Smart Card technology

Datanet has developed a multi application smart card system called e-Smart Card. Its essential technology capabilities are (i) ID (ii) strong authentication (iii) e-Purse (iv) Digital signature and (v) e-Document.

The SmartMfT application uses the digital signature and e-Document functionalities, by generating & verifying the Transaction Authentication Code (TAC) for all key transactions and by storing the loan transaction records on the card itself.

Effective Management

For best effectiveness, the transaction data should move at the earliest & with least paper. The information needed by the Field Officers & the borrowers should be available readily in electronic form. All this can impact the total cost of transactions

Cost of Transaction & Security

Several factors contribute to the cost of transaction:

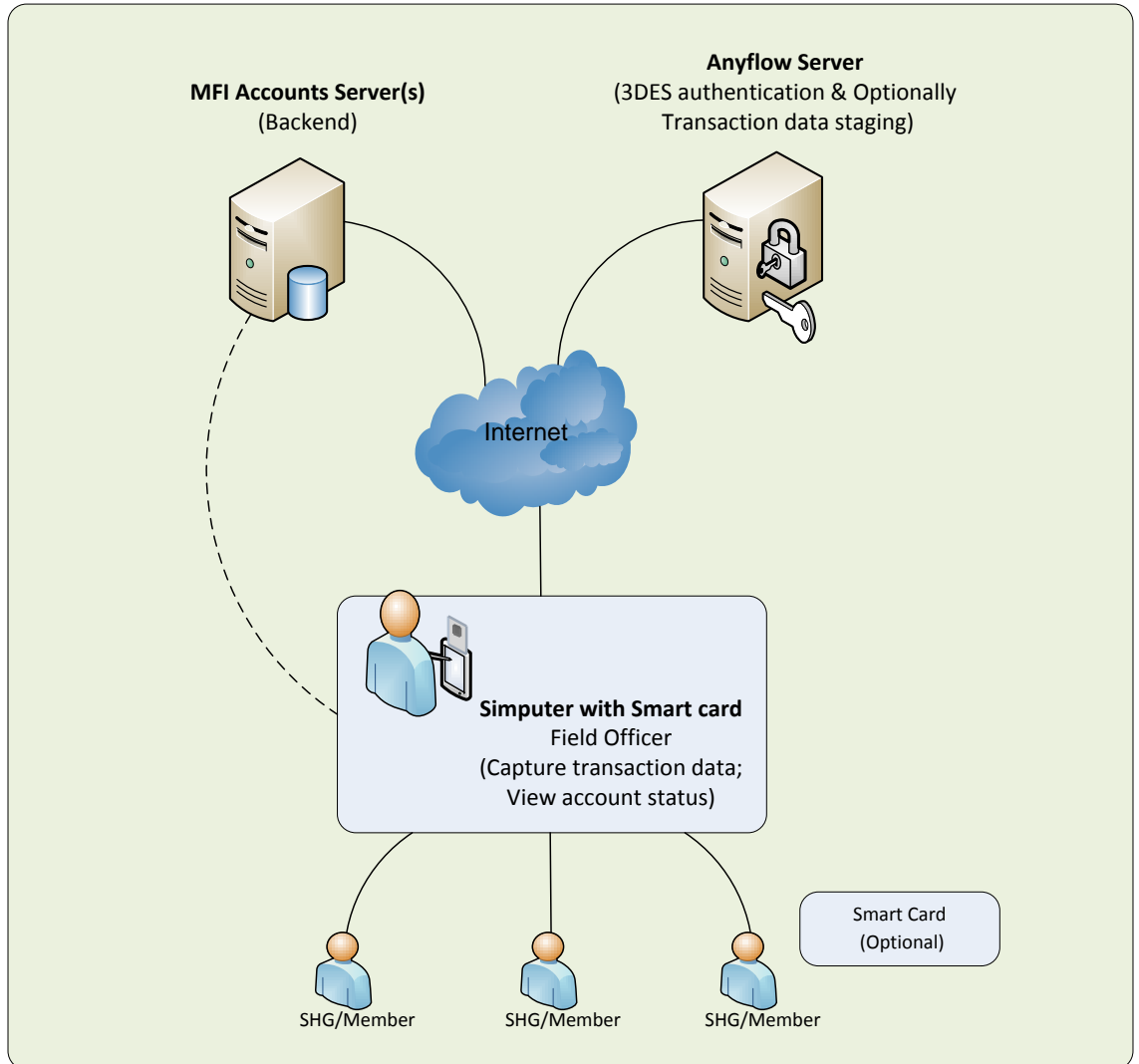
- (i) Delay in information movement & processing, particularly with paper documents.
- (ii) Repeated data entry of transaction data and consequent delays & errors.
- (iii) Possibility of fraud, repudiation of transactions, and lack of adequate authenticity of entities involved in transactions.
- (iv) TCO of IT solution deployed



Architecture of SmartMfT

The subsystems used are Simputer, smart cards, Internet connectivity and back-end accounts processing system.

The architecture of the system is as shown:



Features & Role of the subsystems:

The Simputer: This is a low cost computing device with a built in smart card reader & modem. Applications developed under Linux & C can be loaded on the device. In this solution, its role is to capture the transaction details, read/write the smart card, compute a hash using cipher feedback algorithm, get a 3DEScryptogram called TAC (Transaction Authentication Code), dial out & connect to Internet and exchange either individual transaction data or bulk transaction data with the Anyflow server.



The Smart Card: This is a 4K, 3DES capable smart card from Gemalto. It stores SHG details such as SHG code, SHG name etc, summary info of the loan account such as total amount sanctioned, interest rate, amount repaid so far, number of installments paid so far etc. It also stores the details of individual disbursement & repayment transactions. It has a 3DES key unique to the card, which is used to compute the TAC.

The Anyflow server: This is a secure, high performance, high availability server hosted on the Internet. It contains a RDBMS and the back-end application for accessing/processing the data.

The MFI Accounts Server: This contains the back-end application of the entire loan system and captures & processes all the loan transaction related data.

SmartMFT's Functionality

The system implements the following transactions. Certain transactions can be done either online (from Field Officer's residence), or offline – data is downloaded to Simputer, transaction is later performed offline and captured data is again uploaded. More than one loan can be handled per SHG/Member. Authentication & non-repudiation is assured by appropriate use of 3DES cryptographic processes.

Issue Card: After the loan is approved, a smart card is personalized with bio-data of the concerned SHG/Member and issued. This is done if the borrower does not already have a smart card. *Smart card per SHG or Member is optional, but mandatory per Simputer.*

Enroll Fingerprint: The fingerprint minutiae of the borrower can be captured & stored for later verification.

Download disbursement data: After the loan is approved the HO enters the details of the loan in its accounts server. The Field Officer can then download into the Simputer details of all such freshly approved loans either over Internet or locally from the accounts server, for disbursing loans. (This data can be extracted and uploaded in the Anyflow server database also.)

Disburse Loan: The Field Officer delivers the cheque given by the MFI for the loan amount to the borrower or disburses it in cash. Fingerprint can be verified at this stage. This transaction is done off-line. The transaction details are also stored in the Simputer. A print out of the details can be taken. The details are recorded in the borrower card, if one is issued. The software shows both Disbursed & To Be Disbursed records.



Download Collection Data:

The Field Officer can download the repayment schedules/due for repayment details to the Simputer & view the same. This is used to collect the repayments due.

Collect Repayments:

The Field Officer enters the details of the repayment including mode of payment & amount. This transaction is done off-line. In case the data is not downloaded, it can all be entered in the Simputer. The transaction details are also stored in the Simputer. A print out of the details can be taken. The details are recorded in the borrower card, if one is issued. The software shows both Collected & To Be Collected records. The breakup of the repayment amount due can also be showed.

Upload Transaction data:

Typically at the end of the day (or any suitable interval), all transactions of the day are either uploaded to Anyflow server over Internet or to a local Accounts Server and are processed there. HO can either view the results or download the records and integrate into the main Accounts Server for further processing.

Mini-passbook:

The last five transactions done by the borrower can be printed on a mini-printer. The data is fetched from the borrower card, if one was issued.

Clear Loan Records:

The Field Officer can clear all records pertaining to a loan on the card. However, this is done only after checking the loan status for a confirmation that the loan is fully paid-up. The same card can now be used to initiate another loan to the same borrower.

Why SmartMfT

The solution achieves fast, secure and paperless information movement. It also avoids repeated entry of data at multiple points. The Simputer is an affordable, easy to use, portable transaction terminal making it an ideal choice for the Field Officers. As (i) the cost of the subsystems is the lowest possible, (ii) communication is over Internet and (iii) the Anyflow server is an ASP model shared resource, the cost of transactions is minimal.

