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# Inter-Operability & Settlement Models

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# Requirements for Interoperability

- Standards
- Direct connect between mobile payment providers
- Direct connect between banks
- Third party switched access where multiple providers participate. eg: FSSNET, CashTree, CashNet
- Centralized switching and routing – eg: NFS/IDRBT
- New Retail Payment and Settlement Systems eg: INDIAPAY / NPCI
- Number lookup – Centralized Agency for resolving which payment service provider handles the number
- Retail settlement systems
  - Bi-Lateral
  - Multi-Lateral

- Majority of inter-operable ATM and POS transactions globally flow based on this standard
- This provides Card Based routing between institutions
- Standardized security mechanisms for inter-operability – PCI/DSS, use of HSM, Pin carriage and encryption
- Make use of existing infrastructure
- Recent launch of – Faster Payments UK – a path breaking alternative real time retail payments systems is also based on ISO 8583
- India has 120+ Million Cards but 360+ Million Bank Accounts – Account Based routing is required
- Can we look at extensions to ISO 8583 to use existing infrastructure but enable account based routing ?

- **ISO 8583 Based Messaging Standards to cover**
  - **Inter Bank Funds Transfer**
    - **Request Message 0200**
    - **Response Message 0210**
    - **Request Message 0420**
    - **Response Message 0430**
  - **Balance Inquiry**
    - **Request Message 0200**
    - **Response Message 0210**
  - **Mini Statement Transaction**
    - **Request Message 0200**
    - **Response Message 0210**
- **Card Based Routing – Using BIN**
- **Account Based Routing – Using IFSC Branch Code and Account**



# Interoperability Standards Account Based Routing- Extending ISO 8583

M	5756	Sending branch's IFSC	4!a4!c[3!c]	Sending branch's IFSC. The IFSC must be SFMS Enabled only.
M	6021	Sending Customer Account Number	35x	Sender's account Number
M	6091	Sending Customer Account Name	50x	Sender's account name
M	5569	Beneficiary branch's IFSC	4!a4!c[3!c]	Recipient branch's IFSC The IFSC must be SFMS Enabled only.
M	6061	Beneficiary Customer Account Number	35x	Receiving customer's account number
M	6081	Beneficiary Customer Account Name	50x	Receiving customer's account name



# Interoperability Standards Account Based Routing

## SFMS Message Format

The below given table defines the message format for the 8583 field 121.

Sample SFMS message:

```
{4:   Block 4 Begin Identifier
:5756:ANDB0000456   Sending branch's IFSC
:6021:1000002012   Sending customer a/c #
:6091:NITIN SHARMA   Sending customer a/c name
:5569:HDFC0000002   Beneficiary branch's IFSC
:6061:23102031202   Beneficiary Customer
Account Number
:6081:SANJAY SWAMY   Beneficiary Customer
Account Name
-}   Block 4 End Identifier
```

- Card based settlement – Master/Visa/Amex
- Bilateral settlement between Banks
- Settlement with Multilateral Settlement Agency
- Settlement with Multilateral Settlement Agency acting as Central User Registry

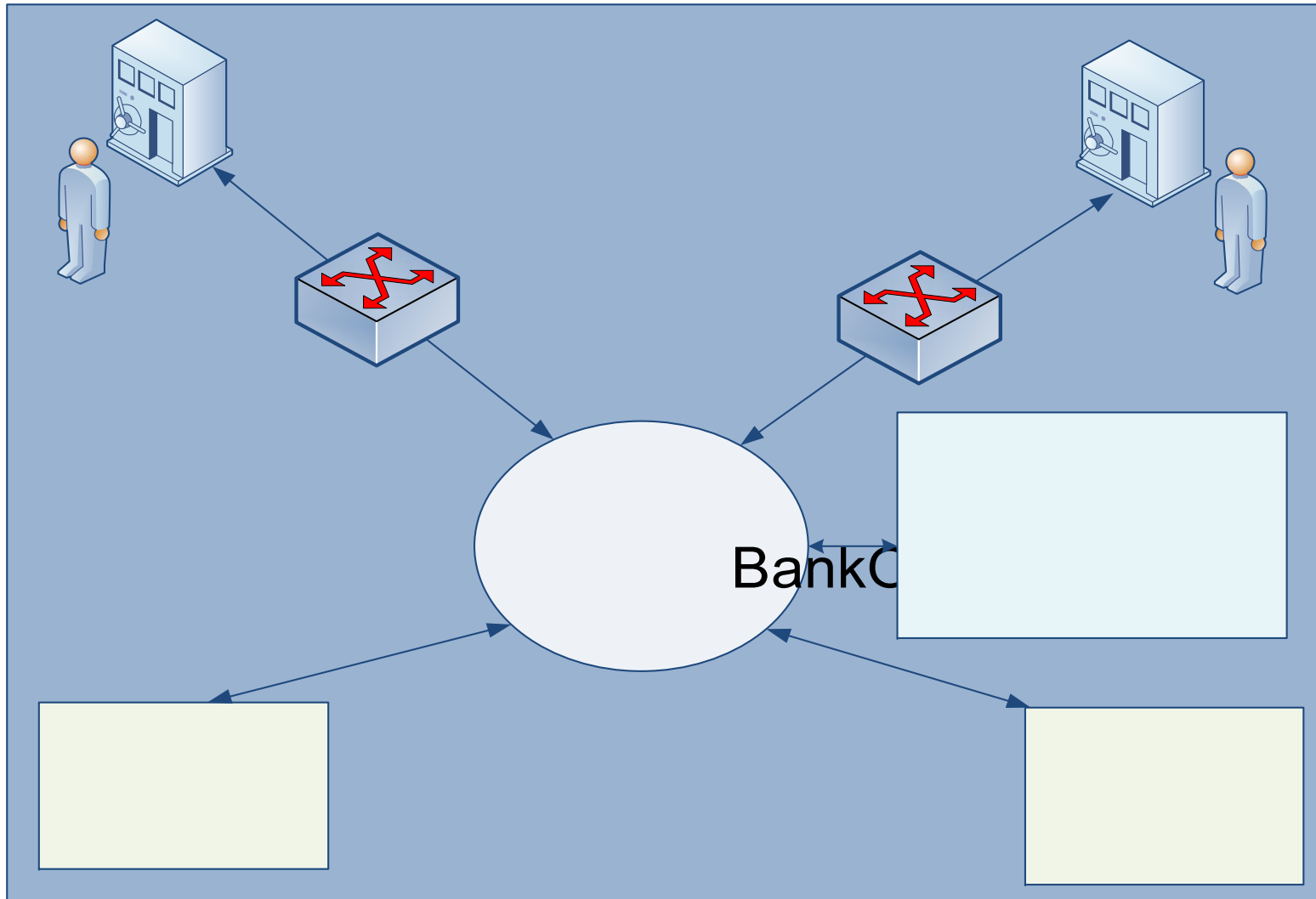


# Card Based Settlement

- MasterCard Money Send
  - Settlement in 24 Hours
- Visa Money Transfer
  - Settlement in 48-72 Hours



# Bilateral settlement between Banks

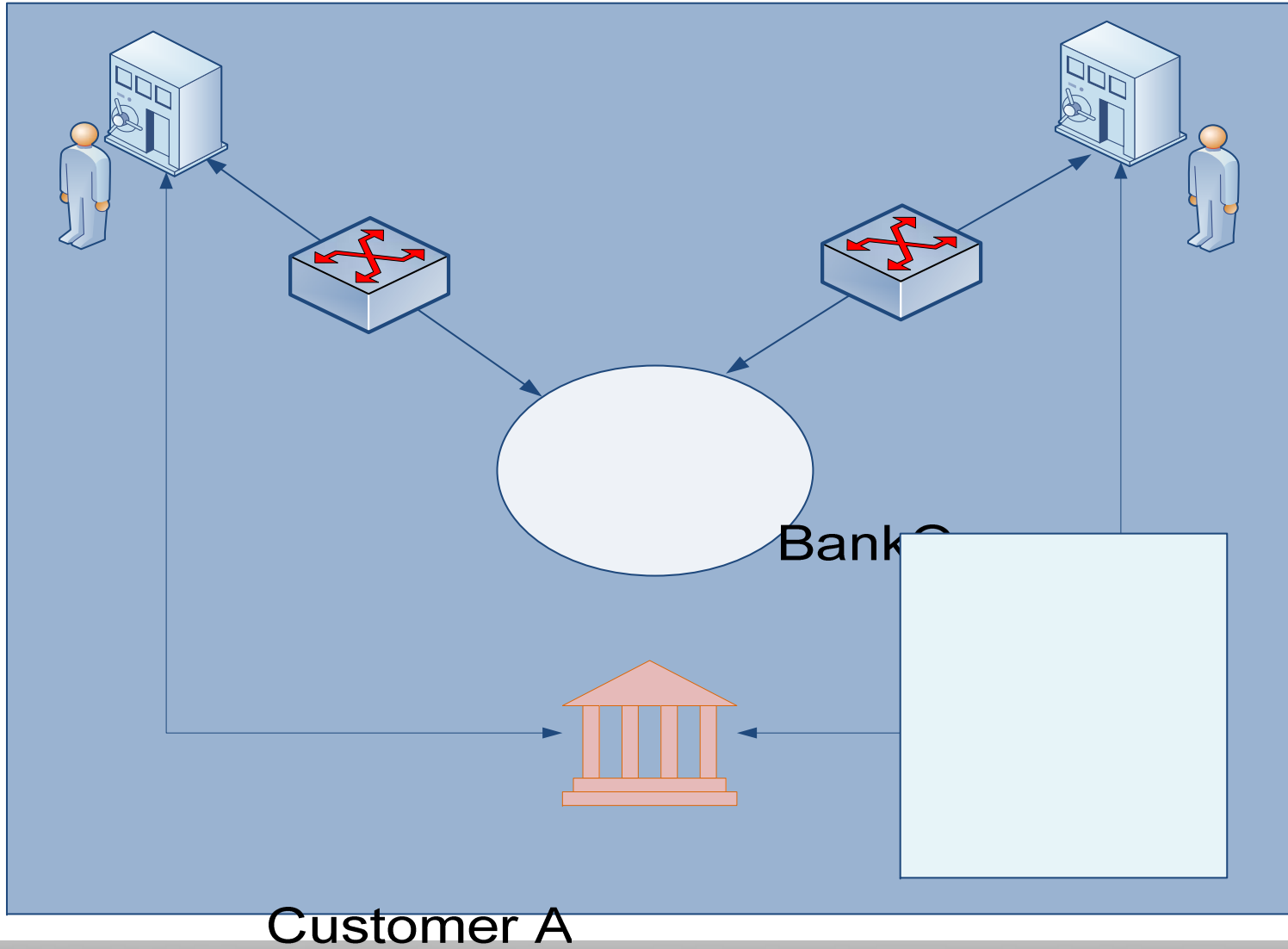




# Bilateral settlement between Banks

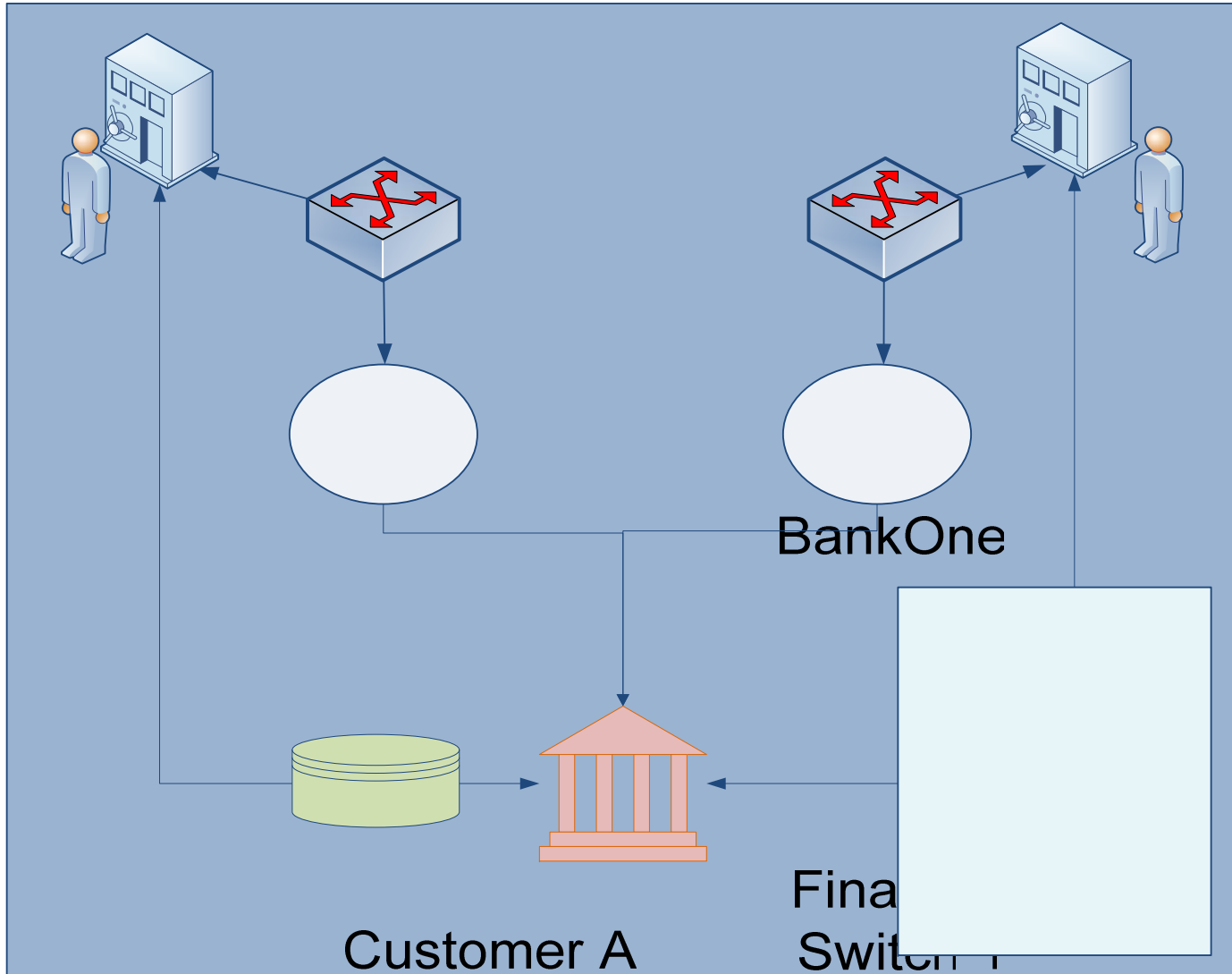
Generally follows existing bilateral arrangements such as Drafts, ATM sharing etc.

- Each bank opens Inward and Outward settlement accounts
- Daily Maximum Overall and Threshold Limit set per bank between other bank
- Reconciliation and settlement done once a day at pre-agreed times
- Maximum Overall Limit per day – This is the maximum limit that each bank will take exposure on the inward settlement account
- Overall Threshold Limit for the day – When this limit is reached a warning message will be sent to the bank
- Once the limit is breached transactions would not be accepted



- Banks have an agreement with the multilateral settlement agency which can operate either fully pre-funded or partially funded with a settlement guarantee fund
- Banks maintain a credit guarantee with the MSA and are provided with a credit limit, or are required to fully fund the settlement account
- The credit guarantee should be based on a monthly moving average of the net payouts of the respective bank taking into account peak seasonal traffic
- The Multilateral settlement agency acts as the central node for all transactions and enables quick end of day settlement of the transactions if the credit or partially funded mode is selected or a rolling settlement providing partner banks a 24x7 ability to top up the settlement account without any specific end or beginning of day, in case the fully funded approach is taken

# Settlement with Multilateral Settlement Agency (MSA) acting as a Central User Registry





## Settlement with Multilateral Settlement Agency (MSA) acting as a Central User Registry

- Similar to Settlement with Multilateral Settlement Agency
- The Multilateral Settlement Agency acts as the universal database/registry of all mobile customers across multiple payment service providers and resolves Phone Number to Account mapping
- This mode of micropayments works across multiple Payment Service providers who have all linked up to the central MSA
- MSA can act as a relay between otherwise disconnected Payment Service providers
- MSA ensures good funds across providers, and banks

- Provide real-time clearing for mobile payments across carriers, banks and multiple payment service providers
- Provide a central registry for all providers and thereby enable interchange of payments between systems which would otherwise be closed-loop
- Provide a central point of control for coordination with Telecom company for notification of blocked, stolen and change of ownership of mobile connections
- Provide a reference point and transaction level audit trail for all retail transactions to enable an Ombudsman to effectively perform dispute resolution

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allowing you the power of your bank account on your mobile phone



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