Authorization & ISO8583

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Disclaimer

- This presentation material (document) was prepared for presenting the YouTube video "Payment Cards - Traditional Authorizations Protocol & Message Format (ISO8583)" - https://youtu.be/SiCbF8phxhA

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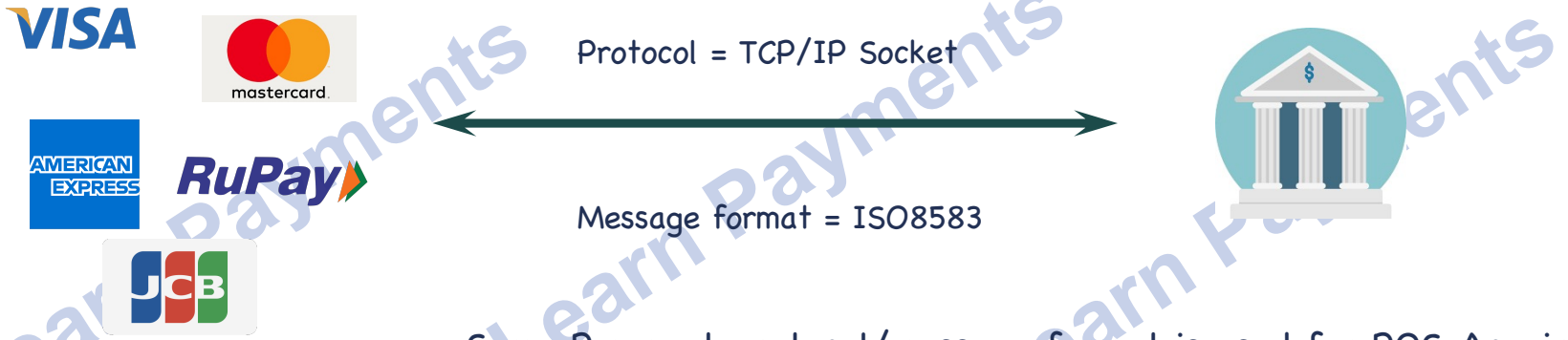
Define: Protocol & Message Format

- Protocol = Method of Communication

- Message format

Payment Card Transactions

Traditional Payment Protocols



- Same Payment protocol/message format is used for POS-Acquirer, Acquirer-Scheme, Scheme-Issuer

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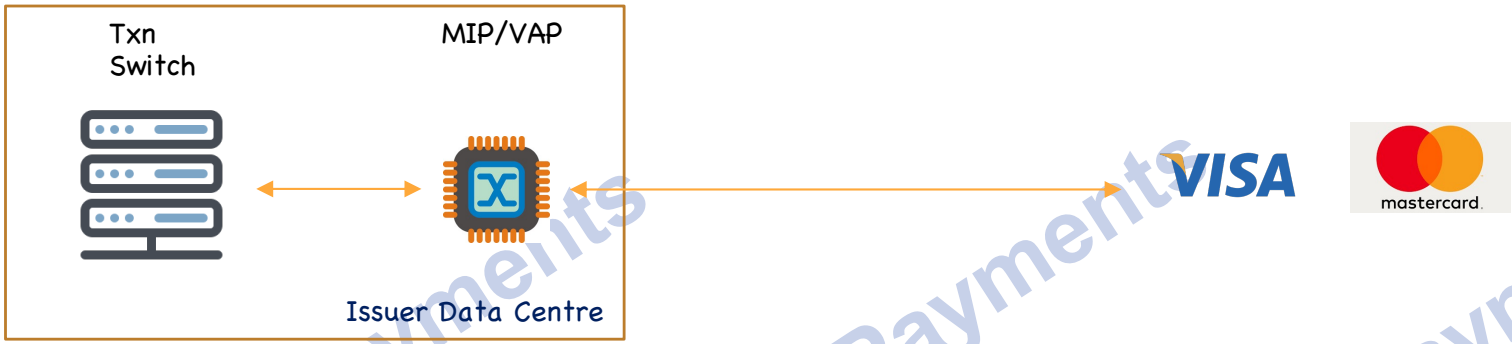
- Newer Payment Protocols are HTTP/APIs over JSON/XML

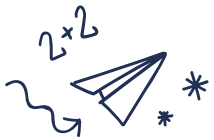
Technical Flow of Auths



- MasterCard/Visa provide a hardware/software called as MasterCard Interface Processor/Visa Access Point which controls the communication to Banknet (MasterCard Network) & VisaNet (Visa's Network)
- Banknet/VisaNet open up (Server) sockets and allow Banks to connect via TCP/IP sockets through MIP/VAP

ISO8583: Message Format

- ISO8583 is the standard for message standard used for Payment Cards between parties
- There are 3 versions of ISO8583
  - ISO8583:1987
  - ISO8583:1993
  - ISO8583:2003
- No major difference between 3 versions, except for the change in field lengths and data elements
- ISO8583 has been adopted by every scheme and have their own variant of message format. It has also been adopted as AS2805 in Australia



MTI

- "Message Type Indicator (MTI)" indicates the type of the message. It's a 4-digit numeric Number

Indicates version of 8583

0 = 1987 version
1 = 1993 version
2 = 2003 version

Purpose of Message

1 = Authorization
2 = Financial
3 = File Update
4 = Reversal
5 = Reconciliation
6 = Admin
8 = Network

Function of Messages

0 = Request
1 = Response
2 = Advice
3 = Advice response

Source

0 = Acquirer
2 = Issuer

MTI

- "Message Type Indicator (MTI)" indicates the type of the message. It's a 4-digit numeric Number

- 0100 = Authorization Request Initiated by Acquirer in an ISO8583:1987 format
- 1302 = File Update Message Initiated by Issuer in an ISO8583:1993 format

Bitmap

- Bitmap provides information of which data elements are present in the message
- In an authorization message, there can be 128-192 data elements (usually)
- For DE 2 - 64 -> Primary Bitmap is used
- For DE 65 - 128 -> Secondary Bitmap is used
- For DE 129 - 192 -> Tertiary Bitmap is used

Bitmap

7 2 3 7 0 5 4 1 2 8 C 2 8 8 0 5

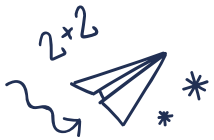
0 1 1 1 0 0 1 0 0 0 1 1 0 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0 0 1 0 0 1 0 1 0 0 0 1 1 0 0 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0 0 1 0 1

Tells if Secondary Bitmap is present

- Each bit indicates each data element
- 2nd bit indicates DE2, 3rd bit indicates DE3 and so on.....
- If bit is set to 1, then the data element is present; if 0 data element is not present in the message
- So, in this message DEs 2, 3, 4, 7, 11, 12, 14, 22, 24, 26, 32, 35, 37, 41, 42, 47, 49, 53, 62, 64 are present
- Each 4 bits are combined and then formed a hexa-decimal digit

Data Elements (Data)

- Fields consist of Transaction Information
- Each field has its own meaning & syntax
- Syntax means numeric, alphanumeric, fixed or variable
- Next slide provides key Data Elements



Few Data Elements (Data)

DE #	Description
2	Card Number (PAN)
3	Processing Code (Identifies Purchase, ATM etc.)
4	Transaction Amount
18	Merchant Category Code (Business Category)
22	POS Entry Mode (How was the transaction done)
35	Track Data
43	Merchant Information
49	Currency code

Sample 8583 message

0210323A40010A41801038000000000000000042005080501139212080504200422513207200000100000011560400080041 1630115114633315 63GBAAASDD ERRR
1300101B5439100100001765435000000000090300000268410000000300000000000000898100009431000000000000000000000000000000000036000299