



The concepts of electronic payment

Integrating the fundamentals of the electronic payment value chain

Content

- Objectives
- Introduction
- Basic actors and their functions
- Relationship between actors
- Summary

Objectives

- **At the end of this course, you should:**
 - Appropriate the electronic terms and the value chain of payment
 - Being able to identify the players in the payment value chain
 - List the main functions of the basic actors
 - Illustrate the schematics of an electronic payment transaction

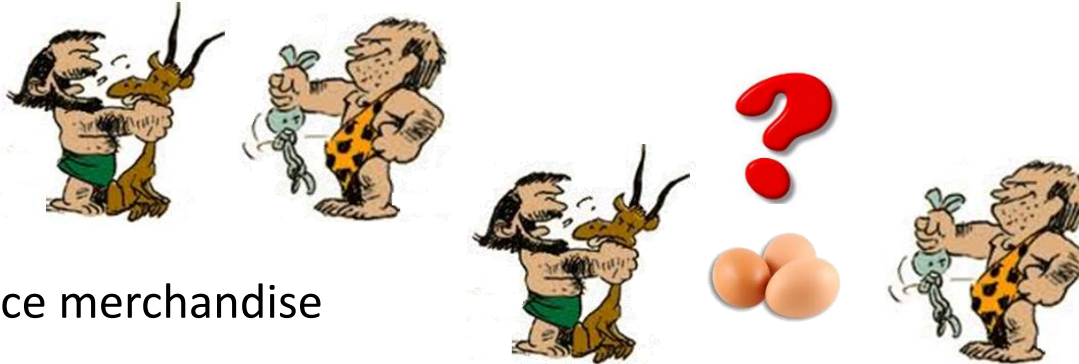
Content

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Introduction

- **History of currency**

- Barter: Good versus Good



- Currency commodity: Reference merchandise

- Metal Currency: Carries own value



- Fiduciary Currency: Coins and Banknotes



- Script money: Checks



- Electronic currency: card



- Digital or Crypto currency

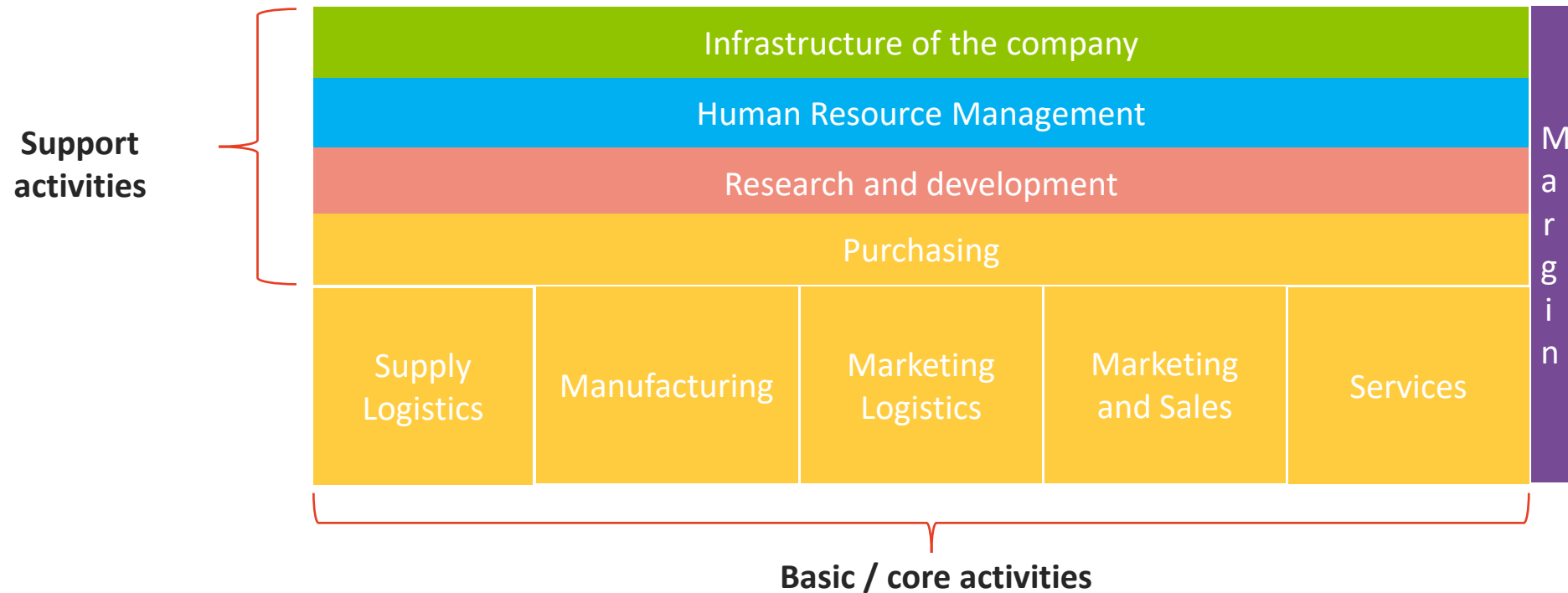


Introduction

- **Electronic payment**
 - **Set of computer and telco processing allowing to:**
 - Manage bank cards
 - Perform associated payment transactions
 - **Integrates technological progress to:**
 - Offer value-added services
 - Modernizing the processing of payment transactions
 - Master the costs
 -

Introduction

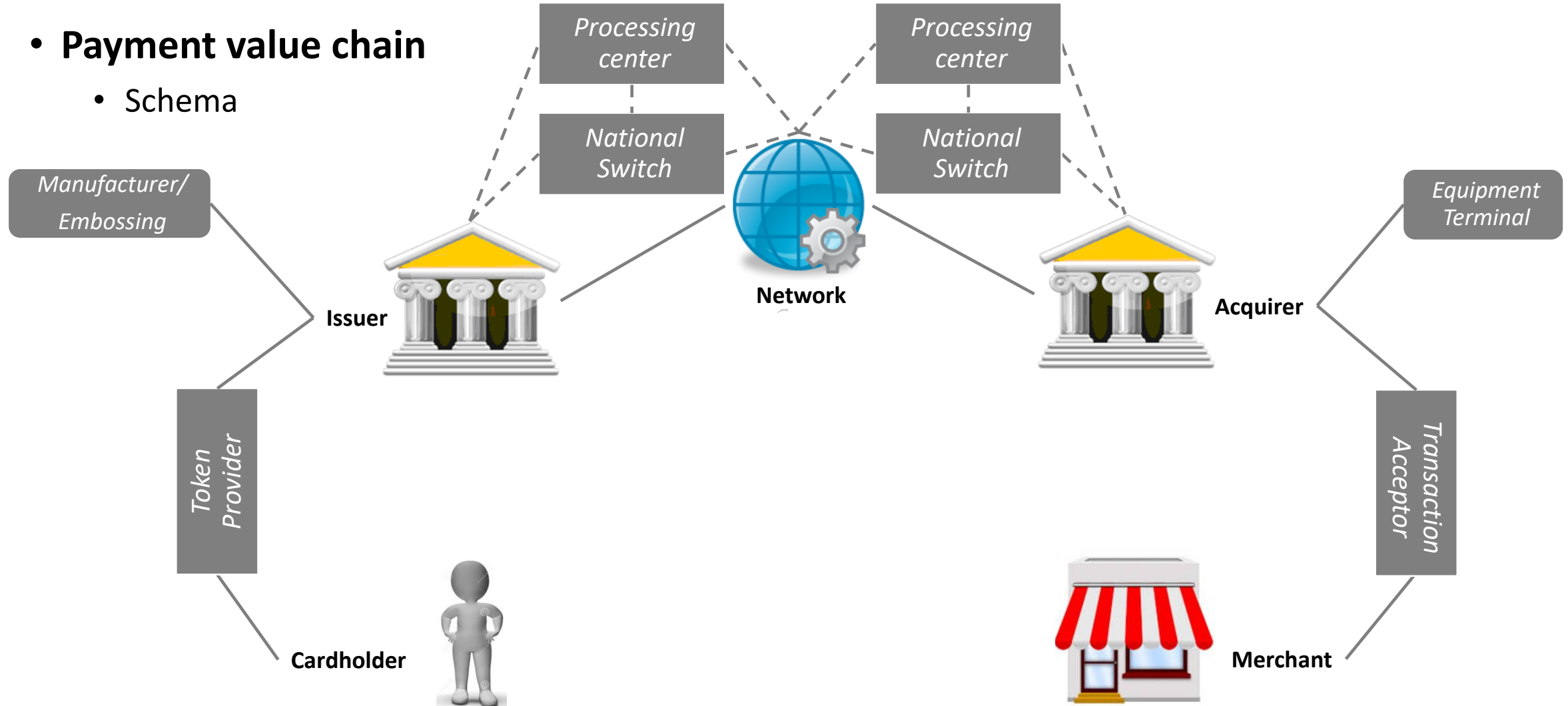
- **A value chain can be defined as follow**
 - All the activities allowing the delivery of a good / service



Introduction

- **Payment value chain**

- Schema



Content

- Objectives
- Introduction
- **Basic actors and their functions**
- **Relationship between actors**
- **Summary**

Basic actors and their functions

- 4 corners' Schema

Issuer



Network/Switch



Acquirer



Cardholder



Merchant



Acquirer

Basic actors and their functions

- **It is a financial institution**
 - Whose customers are merchants
 - Manages merchants
 - Manages equipment (ATM, POS, Iron, etc.)
 - Has a system of acceptance of transactions
 - Has a security system
 - Manages merchant complaints



Acquirer

Merchant

Basic actors and their functions

- **It is a card acceptor:**
 - Equipped with a tool to "read" a card:
 - Electronic payment terminal POS
 - Iron
 - ATM Bank Automatic Banking
 - Branch equipped with a POS
 - Web portal: E-commerce, transaction via Internet
 - M-commerce: transaction via mobile phone



Merchant

Merchant

Basic actors and their functions

- **Merchant / Acquirer Agreement**

- Obligations & Responsibilities
- Services fee :
 - equipment, statement printing...
 - Discount
- Payment mode selection
- Payment Guarantee



Acquirer



Merchant



Contract

4 corners' Schema

Basic actors and their functions

Issuer



Network/Switch



Acquirer



Cardholder



Merchant



↔ Contracts
↔ Physical Connections

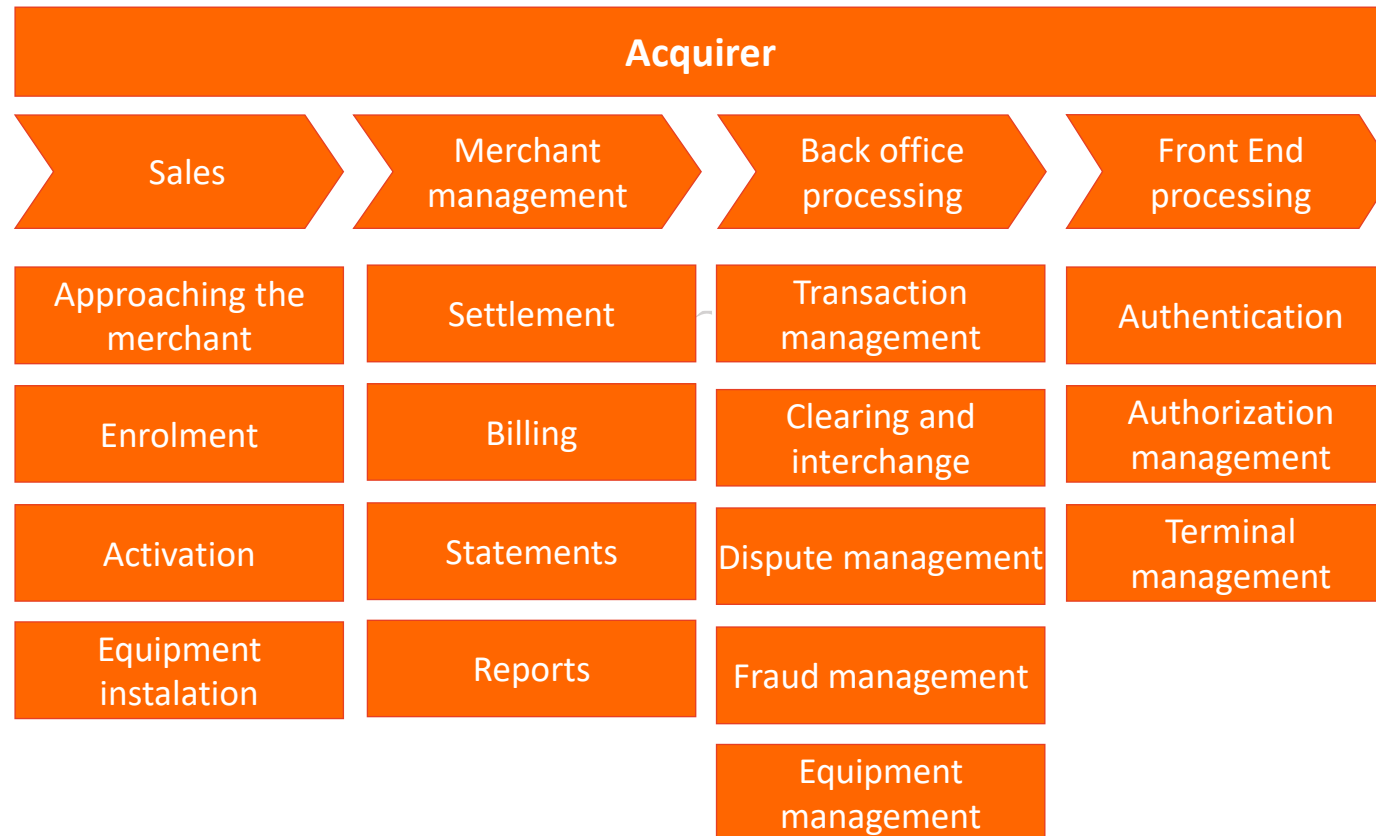


Acceptance tools

Acquirer

Basic actors and their functions

- Functions of an acquirer



Issuer

Basic actors and their functions

- It is a financial institution that
 - Offer cards to customers (Cardholder)
 - Handles cardholders (card)
 - Manages cards
 - Has a system for authorizing transactions
 - Has a security system
 - Manages claims



Issuer

Cardholder

Basic actors and their functions

- **The Cardholder is a**

- Client (Cardholder) of a card of an issuer
- User of the card which has signed a contract with the issuer
- The Cardholder / Issuer contract will specify :
 - The card type (Credit, Debit, ...)
 - Obligations and Responsibilities
 - Fees:
 - Subscription
 - Periodic
 - Renewal, Replacement
 - Card validity period
 - Acceptance Network
 - Territoriality, Services and Authentication
 - Financial Conditions (Credit Card)



Issuer



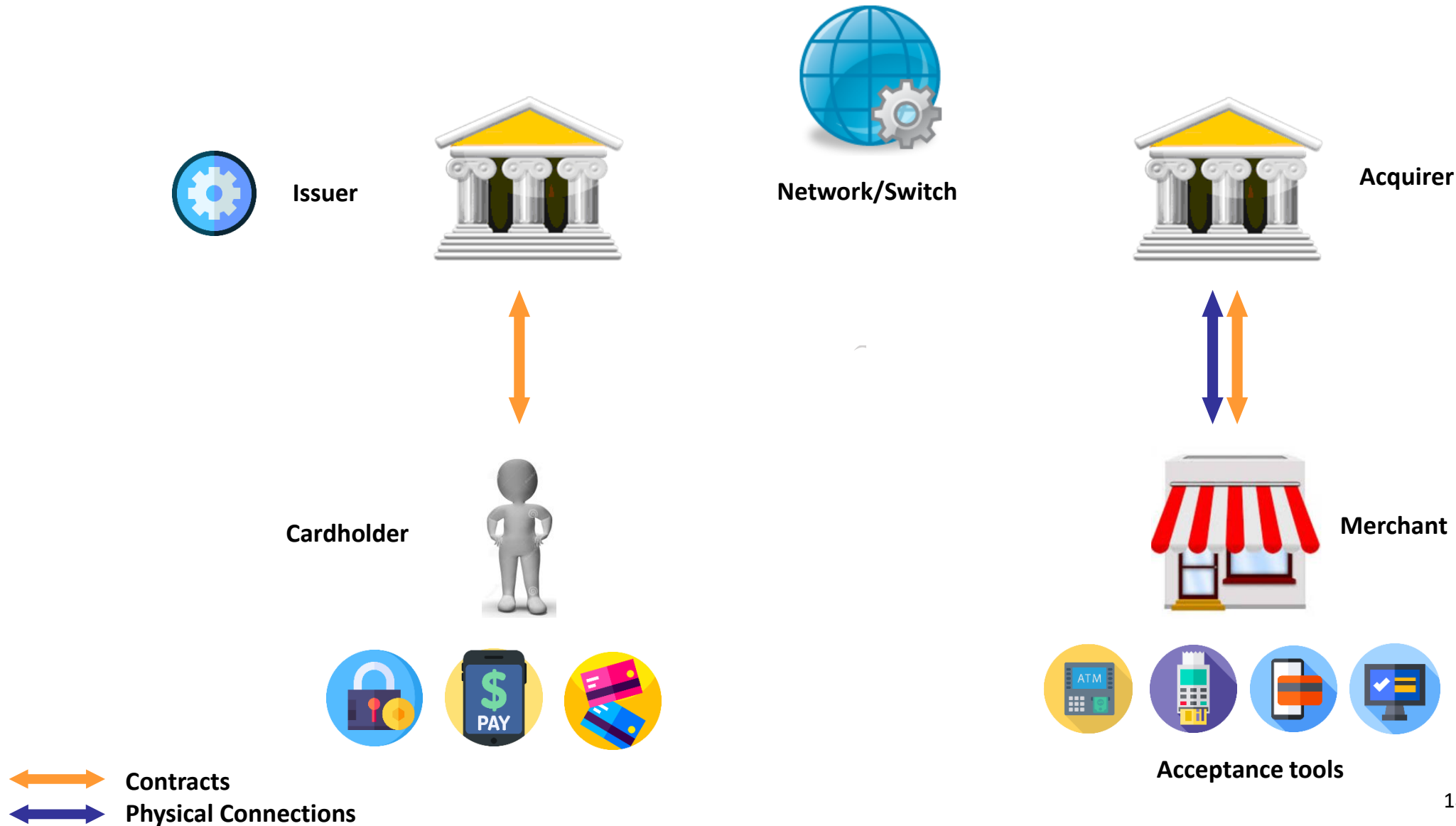
Cardholder



Contract

4 corners' Schema

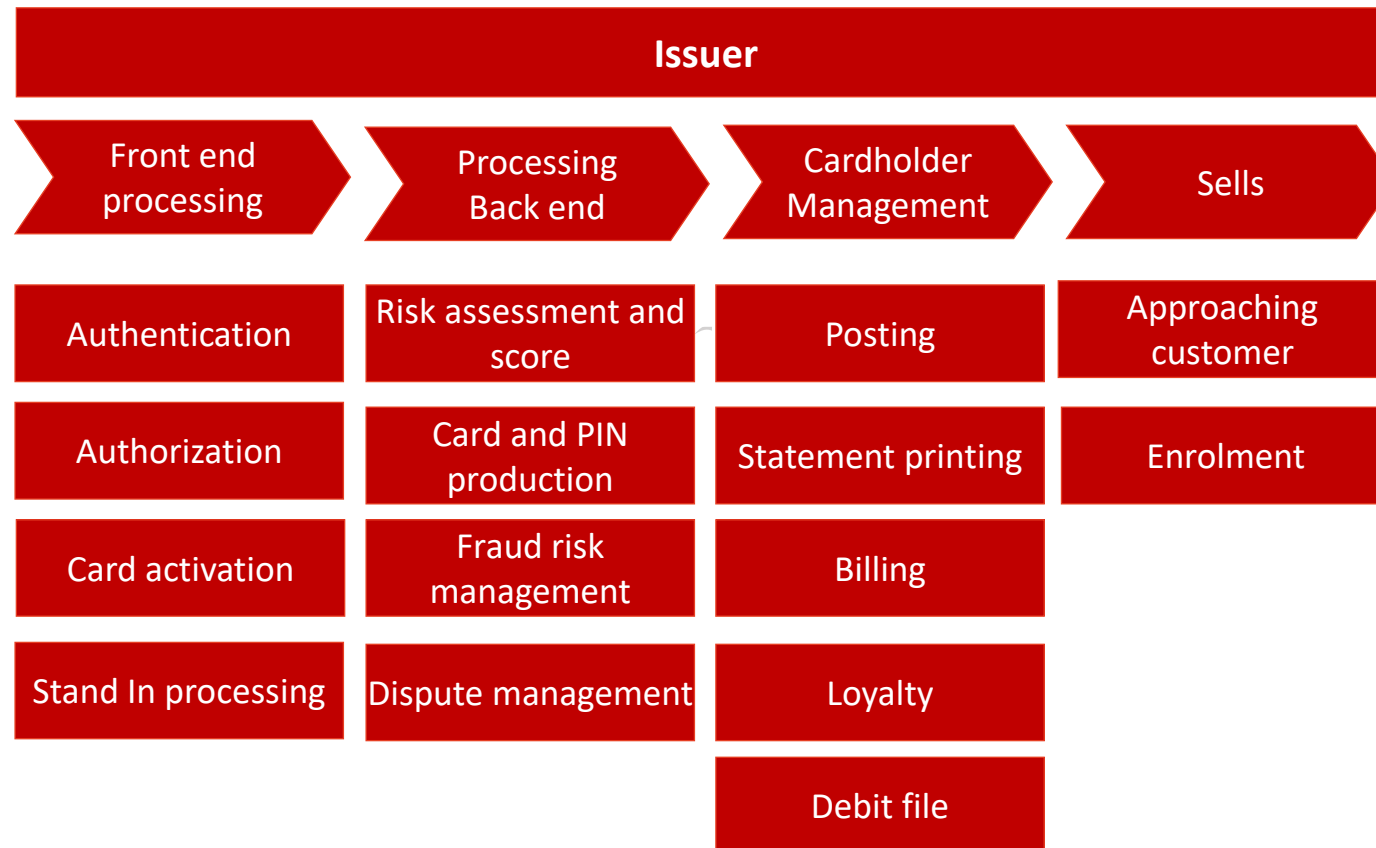
Basic actors and their functions



Issuer

Basic actors and their functions

- Functions of an issuer

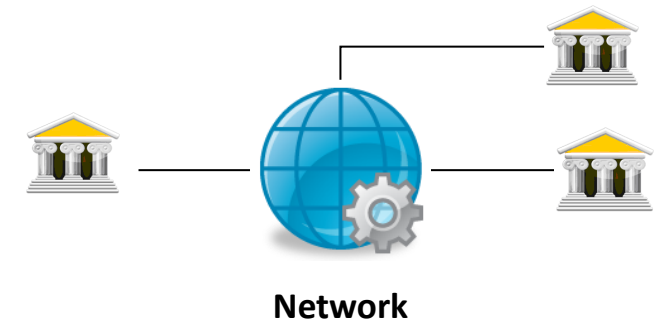


Network/Switch

Basic actors and their functions

- **The network is a financial institution**
 - Which
 - Organizes
 - Defining the payment system architecture
 - Define the format of messages and files exchanged
 - Regulating the relationship between members (Issuers / Acquirers)
 - Provides data to a member
 - Issue BINs (Bank Identification Number)
 - EMV Key Certification Authority (Europay Mastercard Visa)
 - Links members to
 - Ensuring the routing of authorization
 - Clearing and settlement between members
 - Assuring arbitration (Litigation)

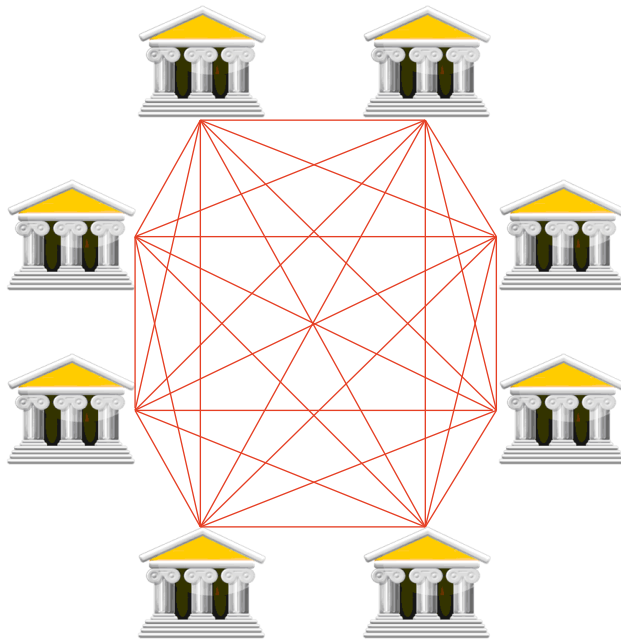
* Network = Card association = Payment system



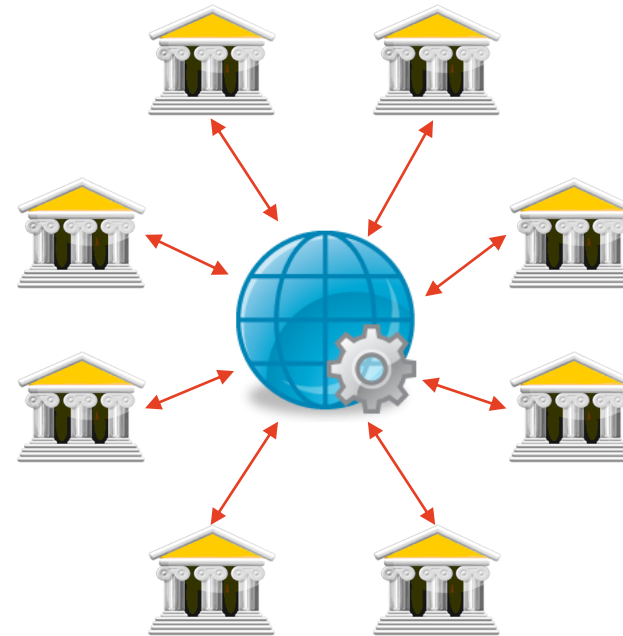
Network/Switch

Basic actors and their functions

- Interoperability Network/Switch



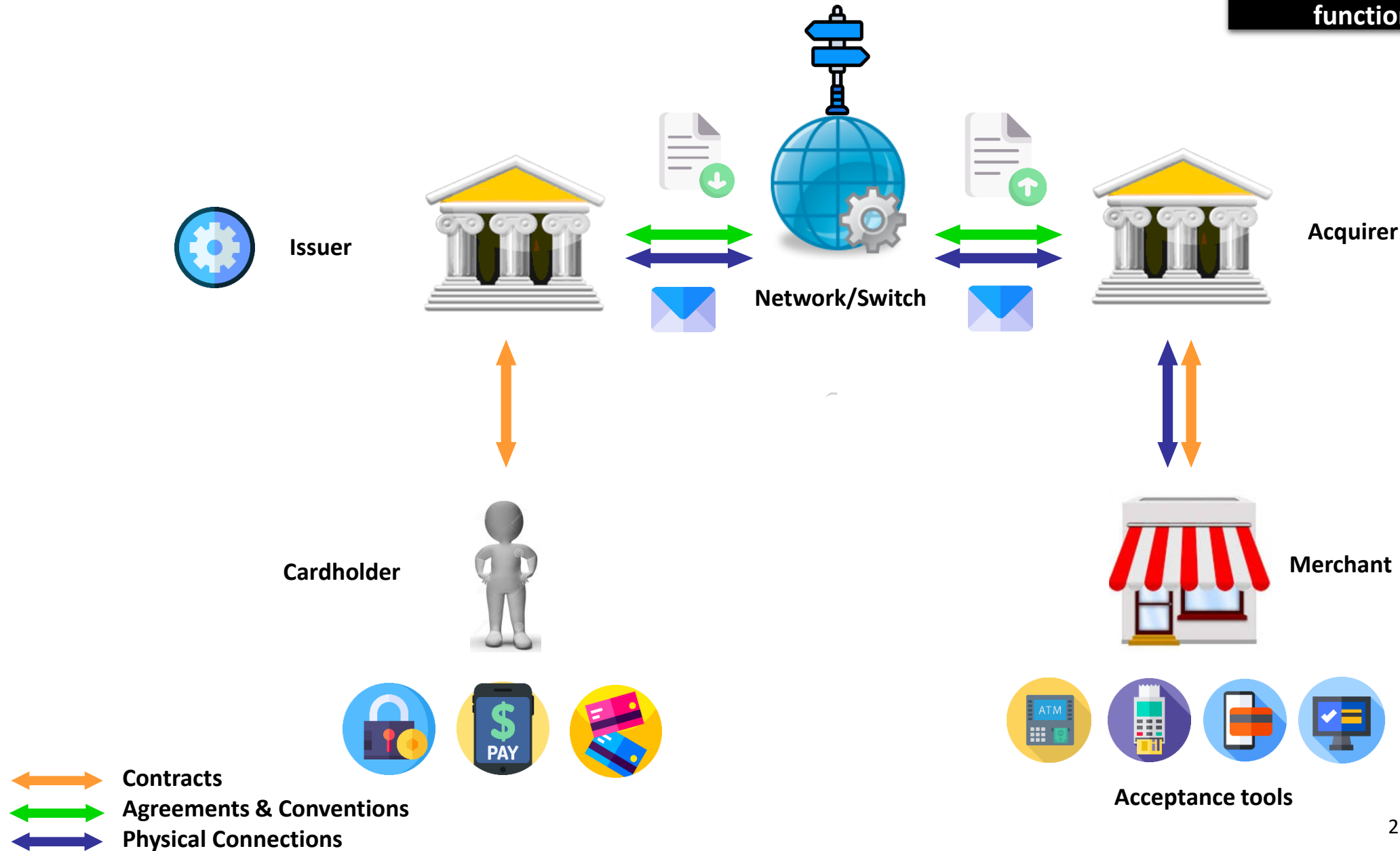
Inter-member network



Network/Switch

4 corners' Schema

Basic actors and their functions

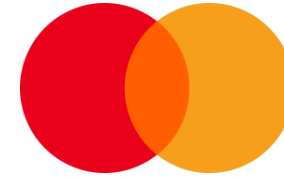


Network/Switch

Basic actors and their functions

- **Examples of network**

- International
 - VISA
 - MasterCard
 - American Express
 - JCB (Japan Credit Bureau)
 - CUP (China union Pay)
 - Diners Club / Discover
 - ...



- **Examples of switch**

- Regional
 - GIM UEMOA ...
- National
 - HPS Switch – Morocco
 - JCC - Cyprus



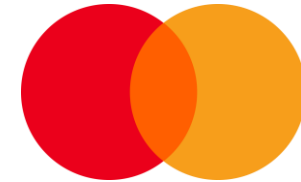
- **VISA**

- VISA = Visa International Service Association
- Established in 1958 as BankAmericard by the Bank of America in California (Fresno)
- In 1973, association of Bank of America with Carte Bleu in France
- In 1976, BankAmericard changed its name to VISA
- In 2006, VISA changed its status to a private company
- In 2008, VISA was listed on the New York Stock Exchange
- Among the types of VISA cards:
 - Platinum
 - Classic
 - Electron



- **MasterCard**

- Founded in 1966 in the United States (New York) as the Interbank Card Association (ICA)
- In 1969, it was purchased by the California Bank Association
- In 1979, the creation of the MasterCard brand
- Among the types of MasterCard cards:
 - Gold, Silver
 - Classic, Maestro
 - Cirrus
- In 2006, MasterCard was listed on the New York Stock Exchange

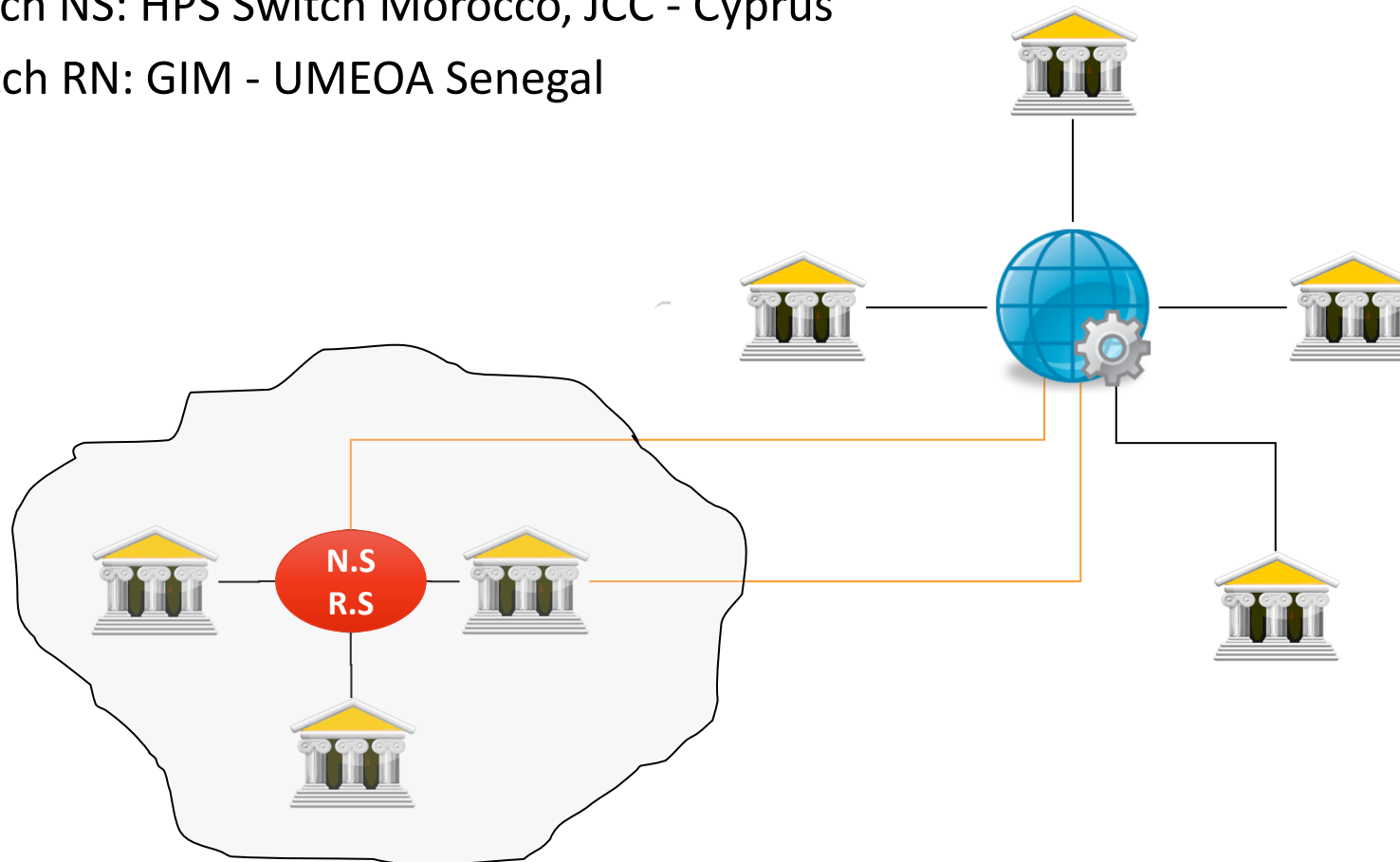


Network/Switch

Basic actors and their functions

- **Switch**

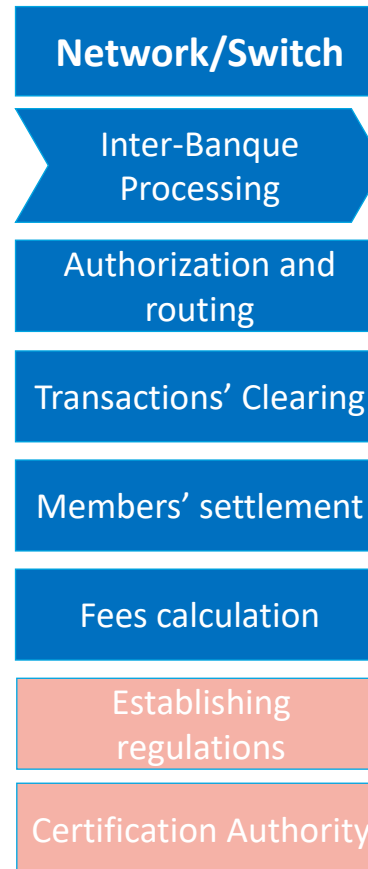
- National Switch NS: HPS Switch Morocco, JCC - Cyprus
- Regional Switch RN: GIM - UMEOA Senegal



Network/Switch




Basic actors and their functions

- Functions of a network/switch



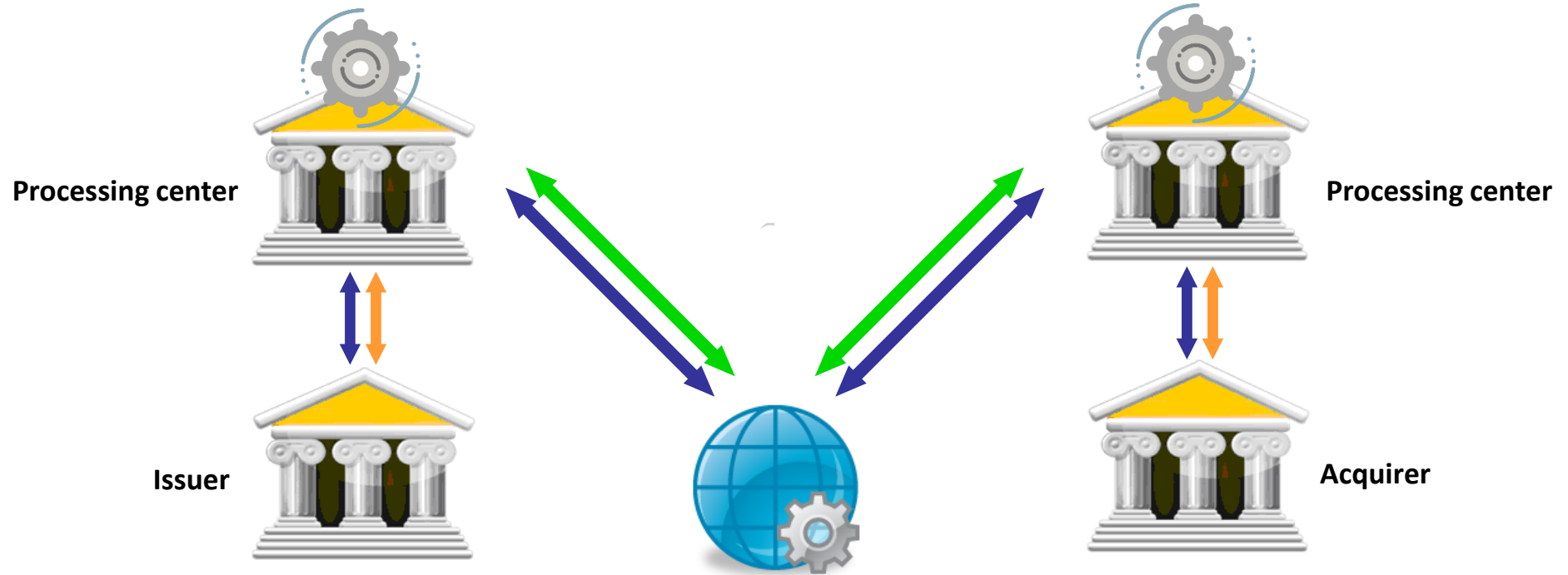
Processing center

Basic actors and their functions

- A Processing center is an entity that
 - Perform some or all the duties of an issuer or acquirer
 - Have a contact with networks for clearing and settlement
 - Example
 - ICPS – Mauritius 
 - GPS - United Arab Emirates 
 - HPS Payment services - Morocco 
 - ..

4 corners' Schema

Basic actors and their functions



- ↔ Contracts
- ↔ Agreements & Conventions
- ↔ Physical Connections

Content

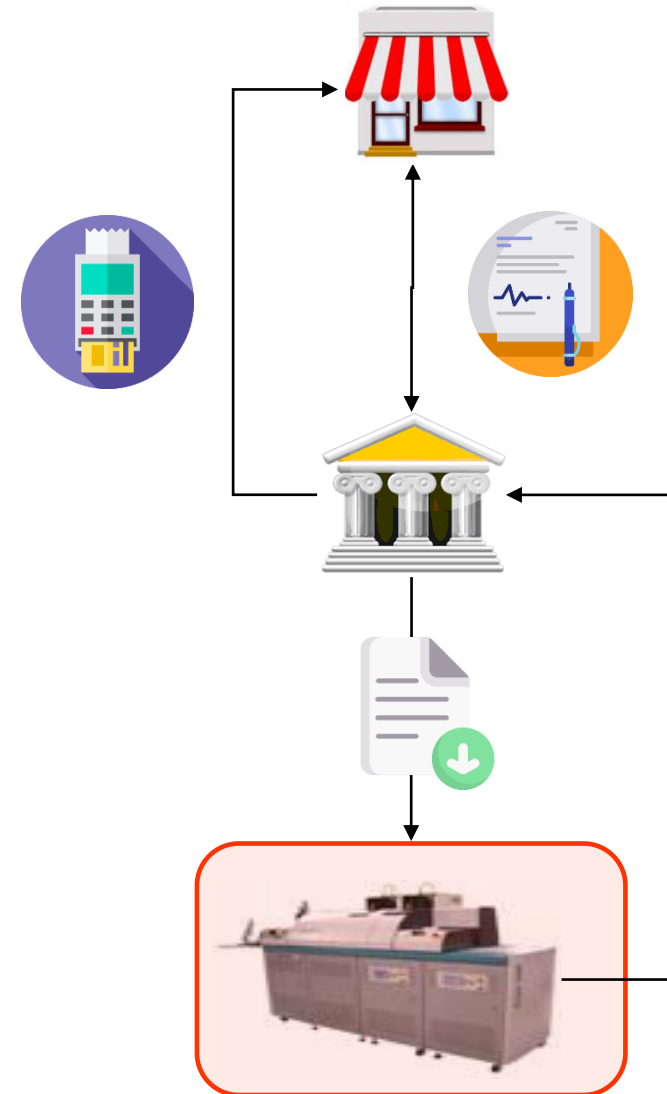
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- **Relationship between actors**
- **Summary**

Merchant <-> Acquirer <-> Embosser

Relationship between actors

- **Relationship**

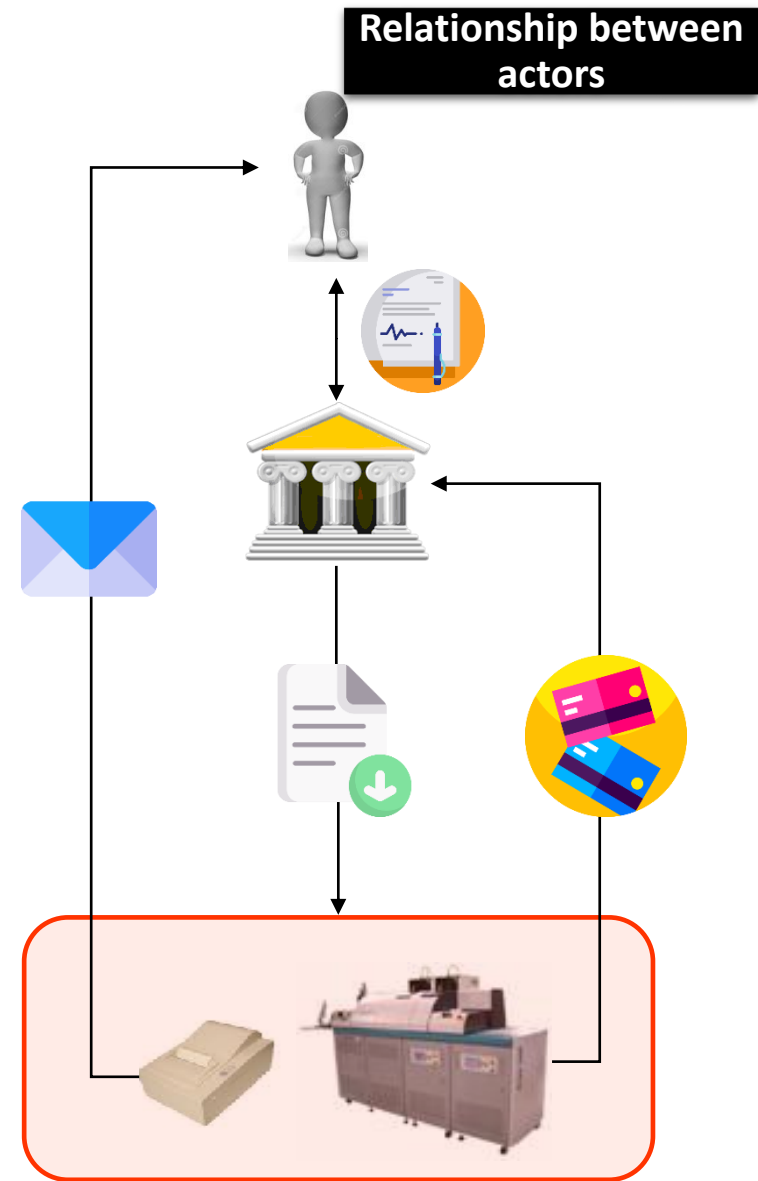
- On boarding process
 - Merchant
 - Request
 - Bank:
 - Contract
 - Request processing
 - Badge production file
 - File -> Embosser
 - Embosser
 - Producing merchant badges
 - Send Badges to the bank
 - Bank -> Merchant:
 - Equipment
 - Badge
 - Paper..



Cardholder <-> Issuer <-> Embosser

• Operations

- Card Management (Example)
 - Customer:
 - Card request
 - Bank:
 - Contract
 - Request processing
 - Card production file
 - File -> Embosser
 - Embosser
 - Editing "PIN Mailer"
 - «PIN Mailer» -> Cardholder
 - Production (Personalization) of cards
 - Cards -> Bank
 - Bank:
 - Card -> Cardholder

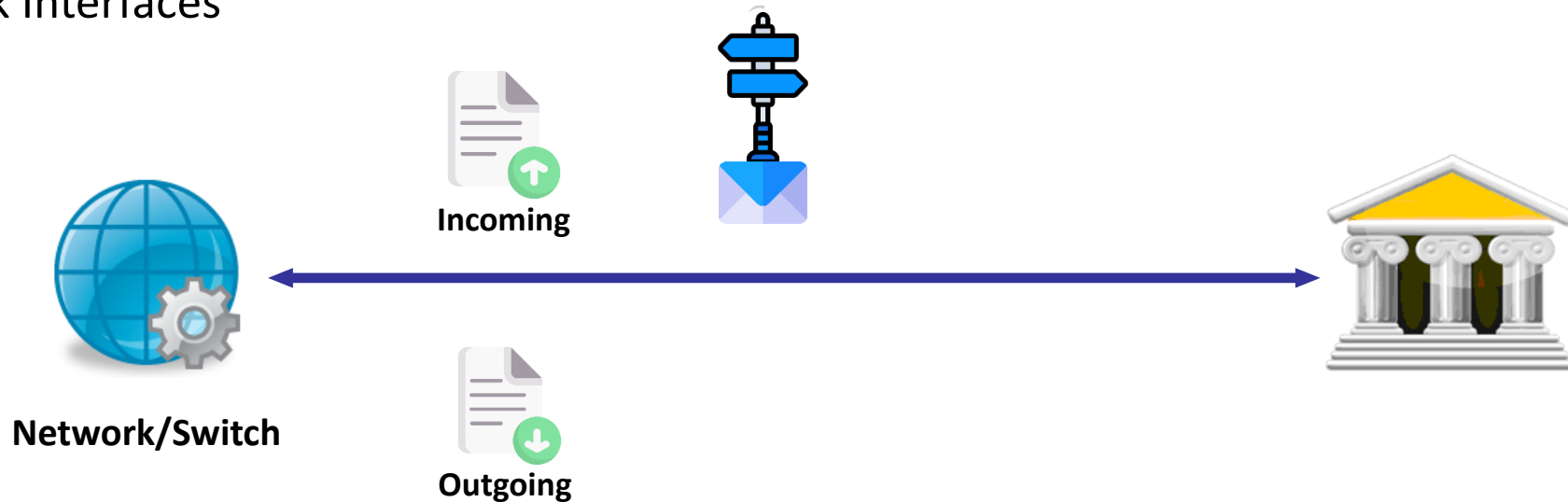


Issuer/Acquirer <-> Network/Switch

Relationship between
actors

- **Common area**

- *Routing system*
- *Clearing system*
- *Dispute Management*
- Fight against fraud
- Network Interfaces

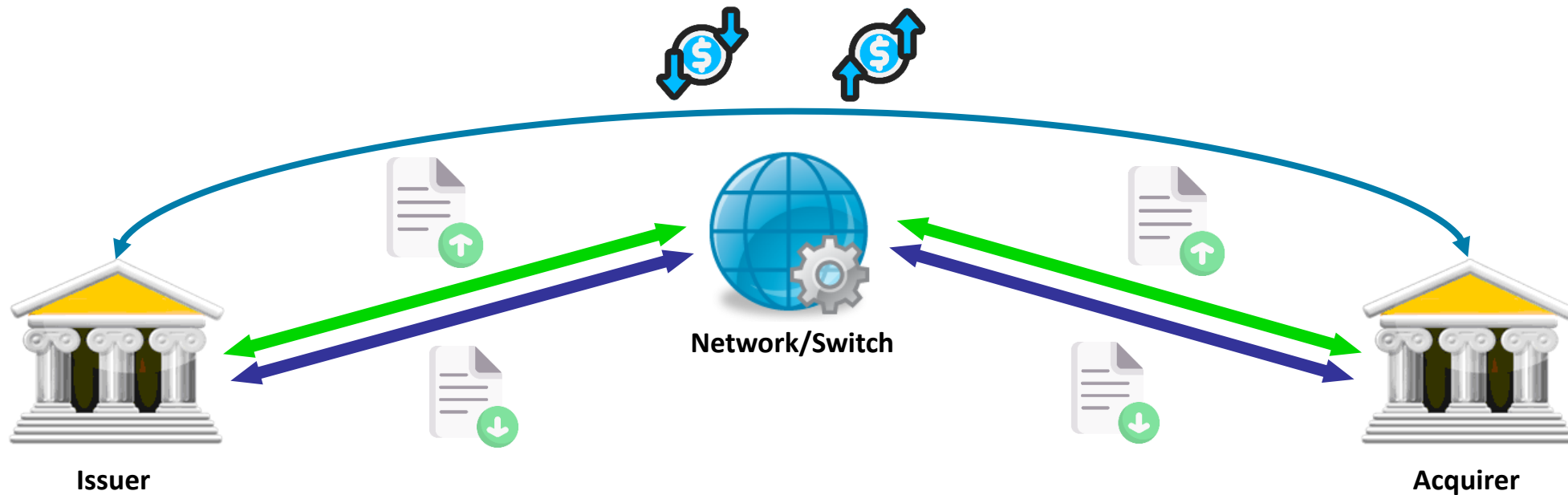


Issuer/Acquirer <-> Network/Switch

Relationship between actors

- Clearing & Settlement System:

- Flow



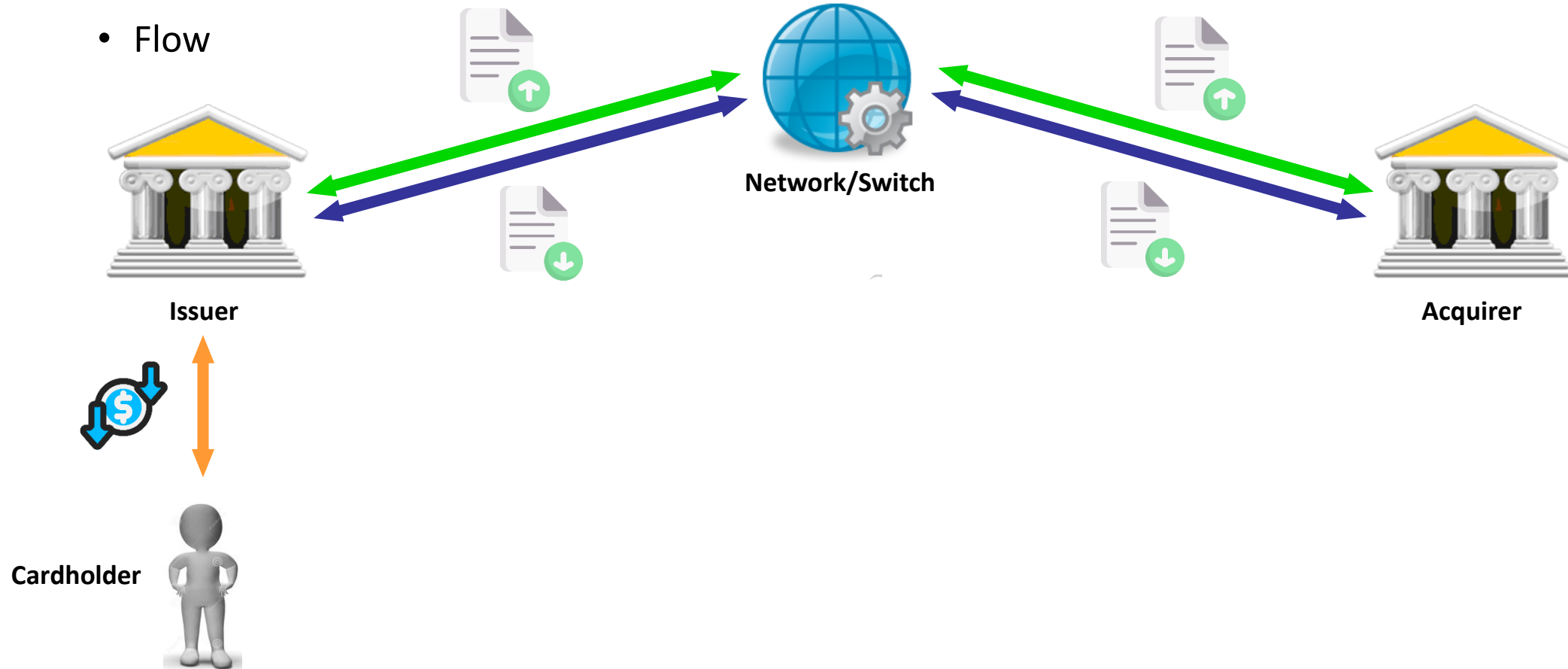
↔ Remittances
↔ Agreements & Conventions
↔ Physical Connections

Issuer <-> Cardholder

Relationship between actors

- Debit Cardholder

- Flow



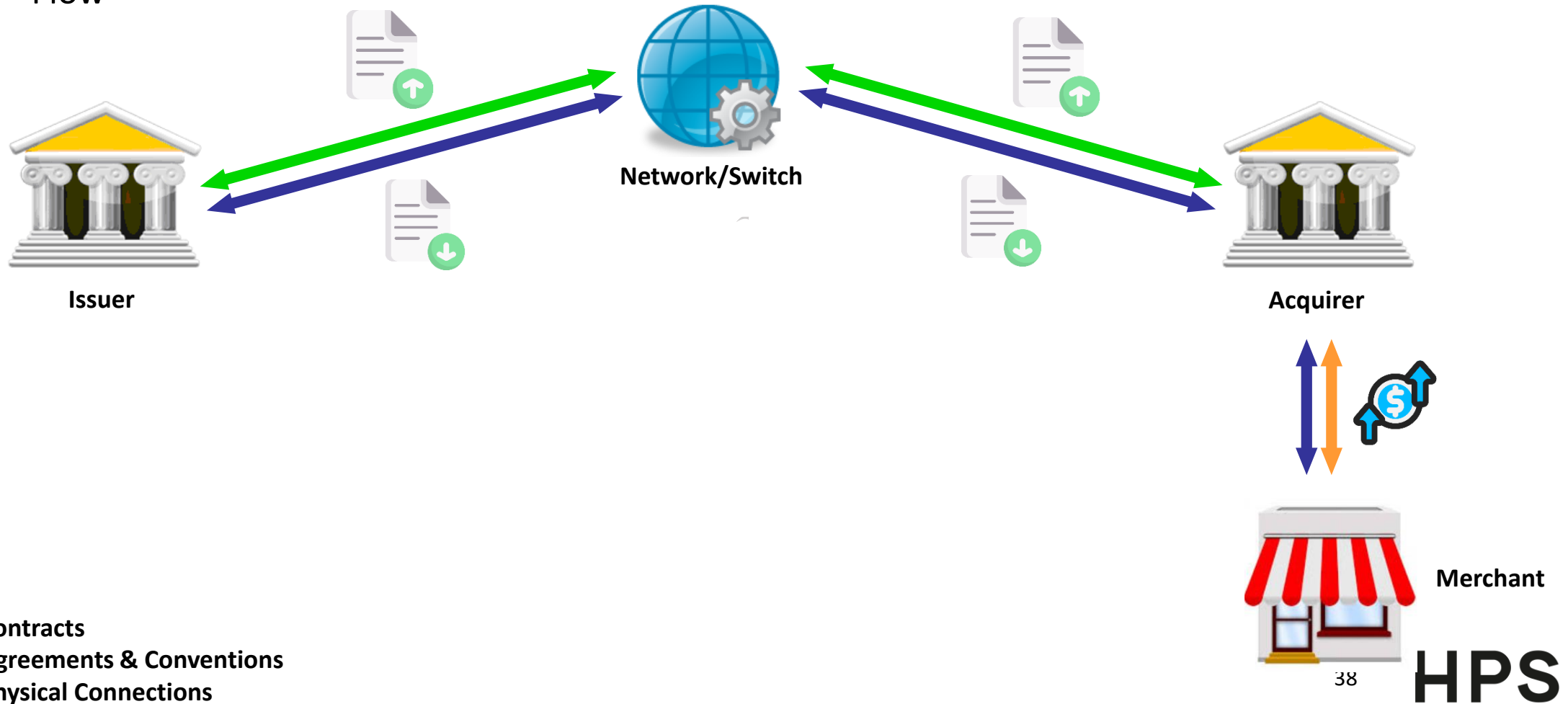
↔ Contracts
↔ Agreements & Conventions
↔ Physical Connections

Acquirer <-> Merchant

Relationship between actors

- Debit Cardholder

- Flow



Issuer/Acquirer <-> Network/Switch

Relationship between
actors

- **Dispute management (Chargeback):**
 - A chargeback is a dispute initiated in case of disagreement between:
 - Issuer and Acquirer
 - Cardholder and Merchant (the Cardholder claims to his bank)
 - It is always the issuer that triggers the procedure
 - All exchanges take place via the network or switch
 - In case of deadlock, it is the network that arbitrates

NB: This procedure generates fees and penalties

Between the set of actors

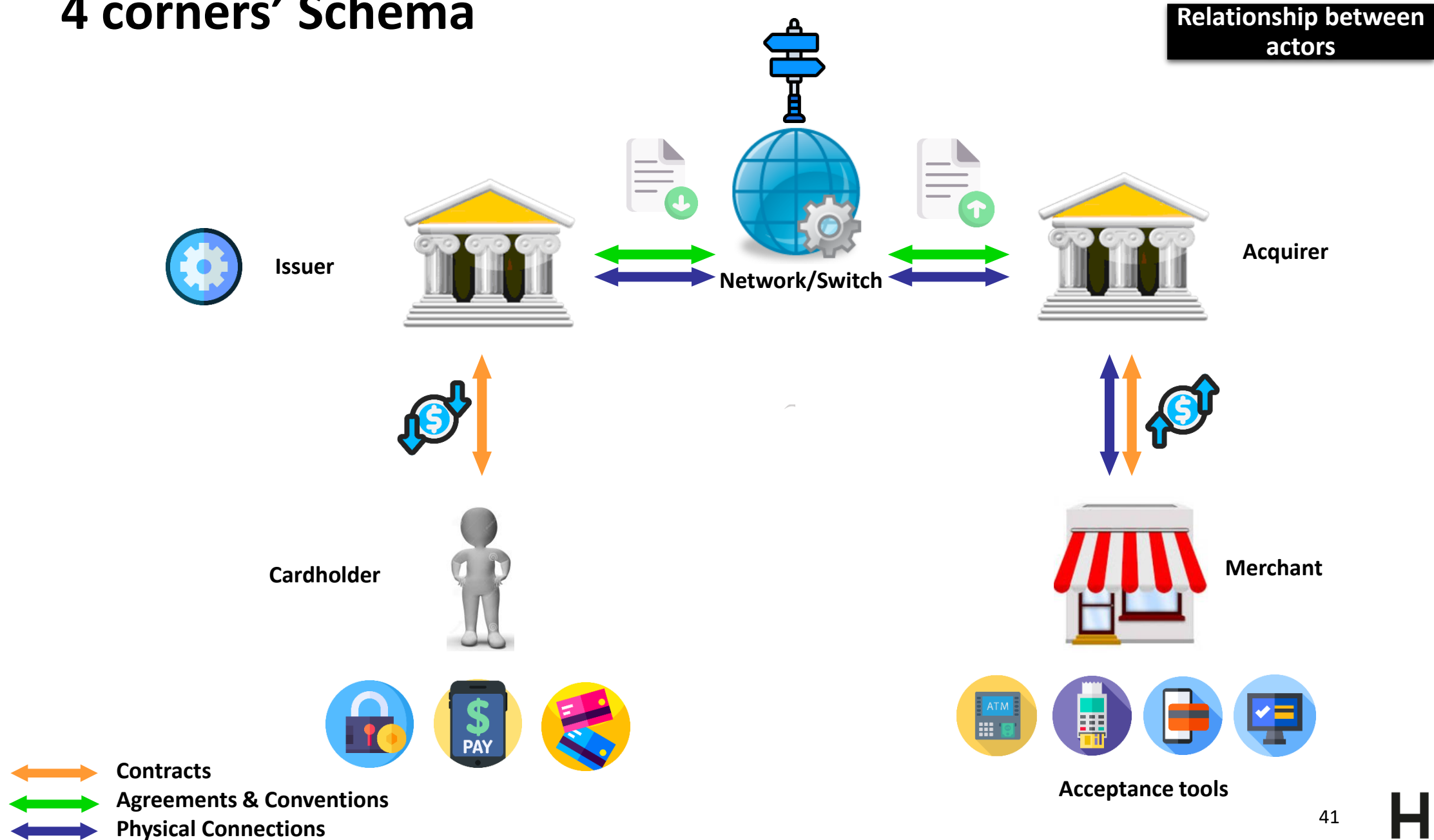
Relationship between actors

- **Basic flow**

- Merchant:
 - Communicates to the acquire the transactions carried out
- Acquirer:
 - Communicates to the network the transactions
- Network or Switch :
 - Compensates members: Acquirer activities & Issuer Activities
 - Settle the members
 - Communicates to each member its activities (Acquirer & Issuer)
- Issuer:
 - Debits the cardholder (with potential fees/costs)
- Acquirer:
 - Credits the merchant (with commissions)

NB: In addition to the amount of the transaction, there is an interchange fee

4 corners' Schema

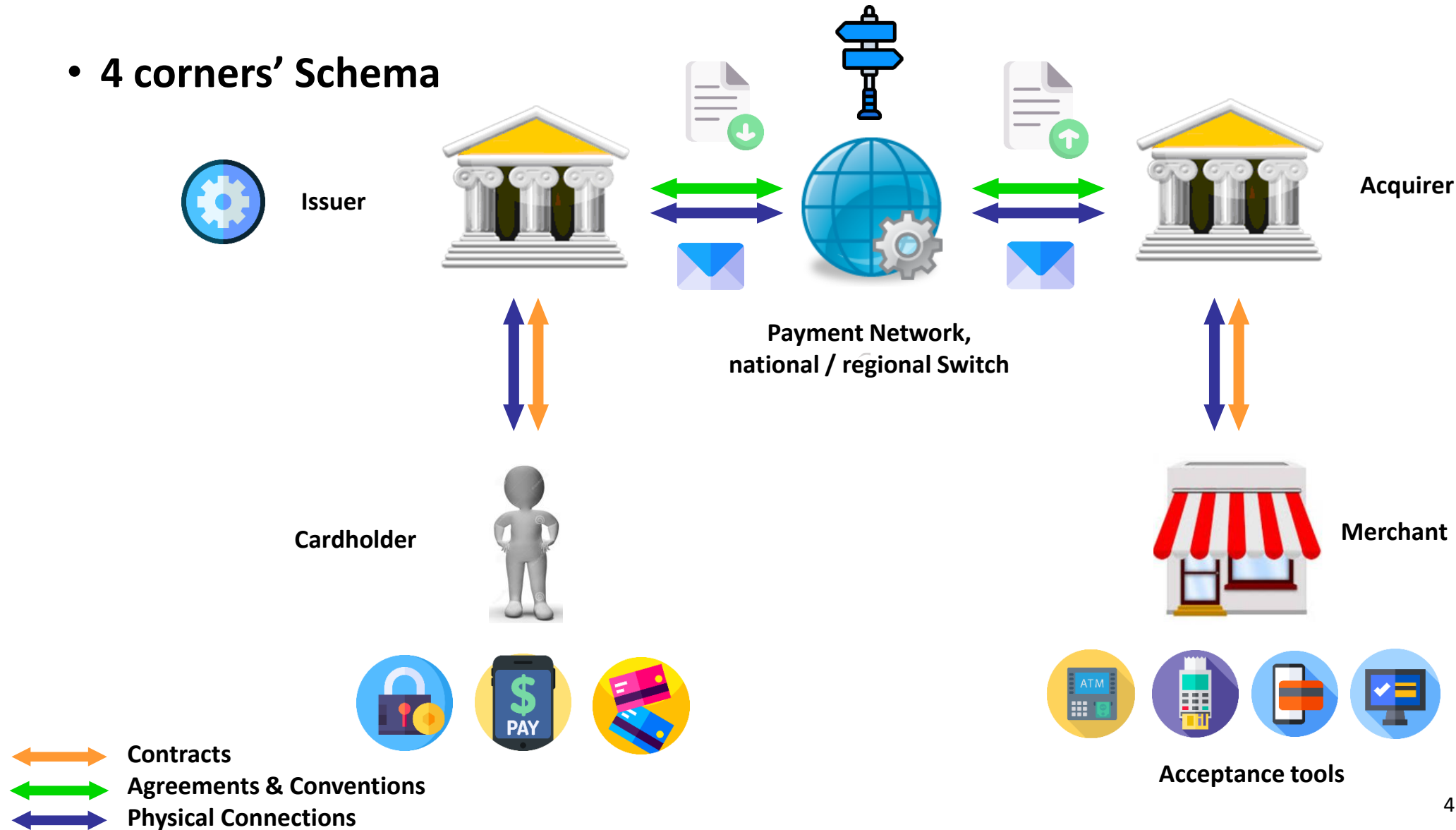


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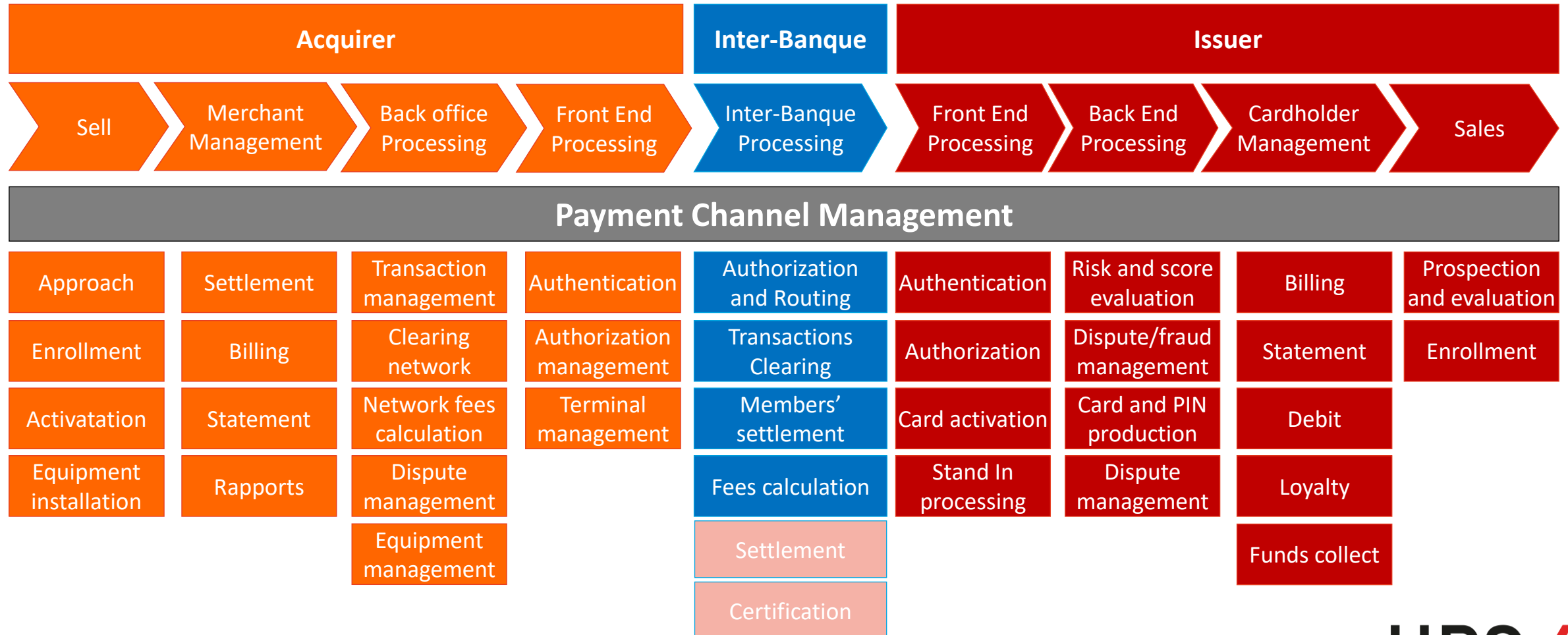
Summary

- 4 corners' Schema



Summary

- List the functions of the basic actors



Sommaire

- Objectifs
- Introduction
- Les acteurs de base et leurs fonctions
- Relations entre acteurs
- Résumé

What you hope to have retained:

- Electronic payment terminology
- The basic actors and their functions and their roles
- An example of an electronic payment transaction flow



Thank you

