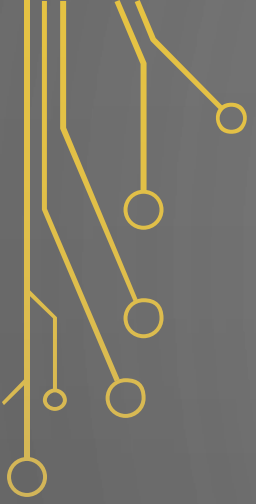


A decorative graphic on the left side of the slide, consisting of a network of yellow and white lines and circles, resembling a circuit board or a neural network, extending from the top and bottom edges.

MIDDLEWARE

PART-2



PAYMENT SOLUTIONS

- 1. E-commerce payment systems have become increasingly popular due to widespread use of internet-based shopping and banking.
 - 2. Internet payment systems refer to various methods by which individuals and companies doing business online, collect money from customers in exchange for the goods and services they provide.
 - 3. The biggest issue is maintaining security of financial information sent over the internet.
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CHARACTERISTICS OF EFFICIENT PAYMENT SYSTEMS

ANONYMITY

APPLICABILITY OR ACCEPTABILITY

AUTHORIZATION

CONVERTIBILITY

EFFICIENCY

INTEROPERABILITY

MULTI-CURRENCY

RELIABILITY

SCALABILITY

SECURITY

TRACEABILITY & LINKABILITY

USABILITY

ANONYMITY

- 1. It suggests that it is not possible to discover someone's identity or to monitor an individual's spending patterns.
- 2. Debit card lacks anonymity as purchase is registered with vendor and bank's databases and it is possible to find out what amount was paid and what was purchased.
- 3. Cash is an anonymous payment system as there is no direct info about payer's personality.
- 4. The right of users to choose how their personal info is disclosed is viewed as privacy.
- 5. Privacy laws in various countries limit usage of personal info by banks, authorities and third parties. For ex: European Commission Data Protection Directive

APPLICABILITY OR ACCEPTABILITY

- 1. It is defined as the extent to which it is accepted for payments at points of sale.
- 2. Cash is accepted widely and virtually everywhere (High Applicability)
- 3. Applicability of a payment system varies from country to country.
- 4. In Netherlands and Germany, Cheques are not commonly used

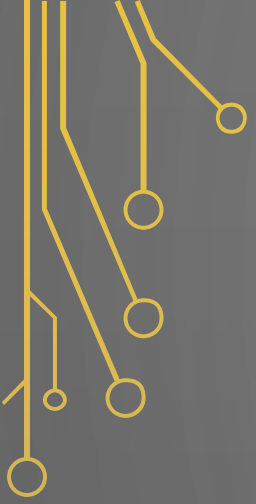
AUTHORIZATION

- 1. Includes both online and offline methods.
- 2. In offline, users of the system exchange money without being connected to network & third party. For Ex: Paper cheques.
- 3. Peer-peer authorization is not fully dependent on authorization type.

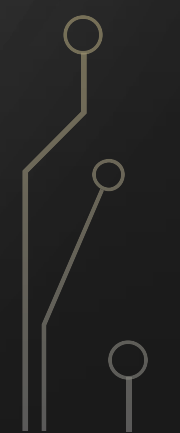
Example: Cash

CONVERTIBILITY

- 1. Funds represented by one payment mechanism should be easily convertible into funds represented by other payment systems.
- 2. Users should be able to transfer money from one payment systems to another accepted form. Ex: receive in cash , transfer to bank account



EFFICIENCY

- 1. Ability to process small and micro payments without performance degradation and high transaction costs.
 - 2. Cost per transaction should be reasonable for processing small amounts.
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INTEROPERABILITY

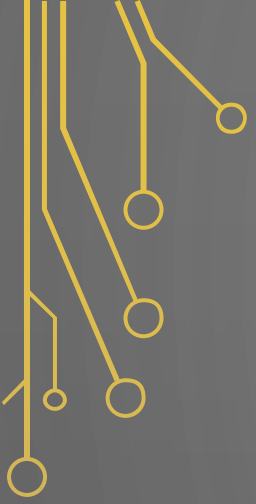
- 1. Not dependent on one company, open and allows interested parties to join.
- 2. Achieved with having open standards for data transmission protocols and infrastructure.
- 3. An interoperable system can faster gain necessary customer base

MULTI-CURRENCY

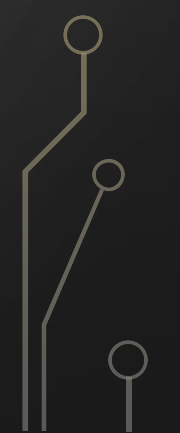
- 1. payment systems should allows processing ,multi-currencies for efficient and effective payments between different countries.
- 2. Credit cards facilitate cross-border electronic business and e-commerce

RELIABILITY

- 1. Users want a reliable system for smooth running of enterprise.
- 2. In case of breakdown due to hackers' attack or poor engineering, cost of breakdown and failure to maintain reliable operations will be unrecoverable.
-



SCALABILITY

- 1. there is increase in demands placed on payment infrastructure, with the growth of commercial use of internet.
 - 2. The payment infrastructure should be scalable to be able to handle the addition to new users and merchants.
 - 3. Least scalable systems require installation of additional software and hardware and thereby increase costs of accepting payments.
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SECURITY

- 1. Supporting e commerce and payment systems must be resistant to attacks in Internet environment.
- 2. Users would like to be sure that their money is safe while transacting online.
- 3. banks and payment service organisations would like to protect themselves from no money, info being stolen.
- 4. Electronic payment system operator must ensure that e-cash is not spent twice

TRACEABILITY & LINKABILITY

- 1. Traceability indicates how easy it is to trace money flows and sources of funds used in e payment.
- 2. in case of credit cards, it is possible to find out what money was used for and where it came from.
- 3. Traceability when related to linkability implies that payments can be associated with a particular user and it is possible to recognize several payments from same user.
- 4. A relation can be established between a user and his payments based on indirect info like location tracking etc

USABILITY

- 1. Payments are to be done in an easy or user-friendly way.
- 2. Users should have minimum factors that make paying online complicated.
- 3. An overly complex payment process can turn customers away.
- 4. Amazon has devised a check out method to allow customers to make payments with minimum authorization steps and info input

DBMS

- 1. It is a software for creating and managing databases.
- 2. Provides users and programmers with a systematic way to create, retrieve, update and manage data.
- 3. It is actually a tool used to perform any kind of operation on data in database.
- 4. It also provides protection and security to database and maintain data consistency in case of multiple users.
- 5. Examples: Microsoft access, Oracle

FUNCTIONS OF MIDDLEWARE

- 1. Application specific: to deliver services for different classes of applications such as distributed database services, processing, mobile computing.
- 2. Information exchange functions: to manage flow of info across network for transferring data, receiving responses.
- 3. Management & Support functions: to locate resources, communicate with servers, monitor performance.