

ELECTRONIC CASH PAYMENT PROTOCOLS AND SYSTEMS

What is cash payment?

- Cash payment is currently most popular form in conventional paymentsystem in the world.
- Currently cash payment involves 75% - 95% of all transactions are paid in cash..
- Transactions are paid in a cash form (such as \$ bill) from a buyer to a seller.

An electronic cash payment system usually is developed based on an electronic payment protocol which supports a series of payment transactions using electronic tokens or coins issued by a third party.

There are three types of users :

- A payer or consumer
- A payee, such as a merchant
- A financial network with whom both payer and payee have accounts

Overview of Electronic Cash Payment Protocols and Systems

Acceptability : Cash almost universally acceptable as a form of payment, regardless of the transaction amount.

Guaranteed payment : Cash guarantees the payment after the transaction is over. There is no risk it been rejected or bounced.

No transaction charges : Cash is handled from buyers to sellers with no transaction charges.

Anonymity : Many other forms of payment involve a paper trail linking either or both parties with transactions. Cash allows transactions take place anonymously.

Actors Involved in Electronic Cash Payment Systems

Customers : Customers use the digital cash payment systems to make purchases.

Dealers : Dealers have to bear the costs of payment transactions.

Providers for Digital Payment Systems.

Providers are intermediaries between dealers and financial institutions.

They provide services and training.

Development Vendors for Digital Payment Systems

Financial institutions : Banking systems or organizations who use electronic payment systems.

Trust Centers : They control digital signature keys and help to secure customer confidence in certain payment systems. They are responsible for the integrity of transmitted data and authenticity contractors.

Basic Requirements for Electronic Cash Payment Systems

Digital money : Payment systems must provide customers and private households with acceptable digital money.

Security : Ensure the security of transactions and information privacy of users.

Scalability : A large number of customers and concurrent transactions should be handled in a scalable manner.

Efficient and effective : Payment systems must support efficient and effective payment processing and accounting services for small payment transactions.

Simple and low cost : Payment systems must provide customers with simple and low cost transparent transactions.

Basic Requirements for Electronic Cash Payment Systems

Anonymous : Usually, customers wish to stay anonymous for all involved transactions..

Double spending : Digital coins consists of a number of bits. Payment systems must be able to recognize and/or prevent repeated payments with the same digital coin.

Exchange : Digital money should be convertible into "real" money whenever necessary.

Store : Digital money must be stored locally on hard disks or other media.

Value : Digital cash payment systems must provide a large number of digital coins for circulation and perform authentication checking.

Advantages of Electronic Cash Payment Systems

- Saved time
- Reduce transaction process time
- Speed up transaction processes
- Reduced costs
- Reduce transaction costs
- Reduce cash distribution costs
- Flexibility
- Digital cash can take many forms, including prepaid cards
- Digital cash can be converted into different currencies
- Reduce cash distribution risk
- Reduce the regular cash distribution risk
- Error free and efficient
- Reduce transaction errors

Special Features of Electronic Payment Protocols

Features of electronic cashes : Portable, divisible, recognizable, untraceable and independent from physical locations.

... transaction is completed.

ELECTRONIC CASH PAYMENT PROTOCOL: E-CASH

What is E-cash?

E-cash was developed to allow fully anonymous secure electronic cash to be used on the Internet to support online trading between buyers and sellers.

Overview of E-cash

- E-cash is a payment protocol for anonymous digital money on the Internet.
- It is developed by DigiCash Co, of Amsterdam, The Netherlands.
- It is currently implemented and offered by Mark Twain Bank, St. Louis since 1995.
- DeutscheBank Ag, Frankfurt (Main) offers E-cash as a pilot project to its customers since October 1997.

Electronic Cash Payment Protocol: E-cash

E-cash model: Three participants are involved in E-cash payment model: (i) clients, (ii) merchants and (iii) banks.

Client wallet software: Clients have E-cash wallet software (cyberwallet) on their computers where they can use E-coins in their wallet to make purchases from merchants, withdraw coins from their accounts in a E-cash bank. Store and manage client's coins, track all transactions.

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