Chapter 9
Secure Payment Modes Technology for E-Commerce Applications

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ABSTRACT

E-commerce refers to business and customers buying and selling products online. There are significant improvements in the areas of initiating sale of products, placing orders, making payments, and transfer of funds. This has led to a much better global economy and better living standards for all. While buying products online, it is essential to know the payment method that ensures authentication and also many other security issues. There are many payments modes available in market today. This chapter presents different protocols and its security issues that relate to a specific payment mode.

INTRODUCTION

Commerce is the most major aspect of any civilization. Improving Commerce can bring prosperity into all segments of society. In today's world there have been major changes to the commerce industry. The most important of it is the introduction of computers into the commerce industry. Computerization of commerce has taken the world by a storm. There are significant improvements in the areas of initiating sale of products, placing orders, making payments, and transfer of funds. This has led to a much better global economy and better living standards for all.

Payment started with the barter system centuries ago. Goods were exchanged directly between people in the barter system. The major drawback of barter system was that the buyer and the seller had to mutually like the goods that they had in surplus. This led to next generation of payment method called Commodity Money System. Here, the buyer would buy goods from the seller in exchange of some commodity in the form of gold, silver, corn etc. Commodity Money slowly evolved into standard of having paper notes

at the exchange parameter. The cash payment method does not require the seller to like the commodity that he/she is going to receive in exchange for the goods. About 80 percent of all the transactions in the world are done through cash payment. The process is simple and there is no bank involvement. There is however an overhead of printing notes.

The cash payment method is very insecure. There is no record of the transaction maintained. There is a possibility for generating counterfeit notes. Cash Payment is mostly used for low-value payments. Check Payment is employed for making medium to high value payment. A record of the transaction is maintained at the bank at the cost of the transaction fee. However, it is not a guaranteed form of payment since the checks do not represent real time cash. There is a possibility that the checks could be turned down by the buyer's bank due to various reasons. As the volume of check processing started increasing, banks had to think about ways of improving the turn-around time for payment processing.

Problems of traditional processing system (Raj Garg, 2016):

- **Lack of Security:** It is because the consumer has to send all the confidential data on paper, which is not secured and encrypted.
- **Lack of Convenience:** Traditional Processing system requires consumer to send paper cheques duly signed by them before performing any transaction. This may lead to in convenience by consumers.
- **Lack of Time and Eligibility:** Not all the buyers may have the bank accounts.

E-commerce (electronic commerce or EC) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business, business-to-consumer, consumer-to-consumer or consumer-to-business. The terms e-commerce and e-business are often used interchangeably. The term e-tail is also sometimes used in reference to transactional processes for online shopping.

Advantages of E-Commerce

The advantages of E-Commerce are as follows:

- E-commerce helps organization to provide better customer services.
- E-Commerce reduces paper work a lot.
- E-Commerce increased the productivity of the organization.
- E-Commerce provides option of virtual auctions.
- Customers need not to travel to shop a product thus less traffic on road and low air pollution.
- E-Commerce application provides user more options to compare and select the cheaper and better option.

Applications of E-Commerce

The applications of E-commerce are used in various business areas such as retail and wholesale and manufacturing. The most common E-commerce applications are as follows:

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