



## SECURITY ISSUES IN M-COMMERCE FOR ONLINE TRANSACTION

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## ABSTRACT

M-commerce is defined as carrying a business or a service application over the internet. On an internet-enabled mobile based application for making a transaction over the mobile devices for any monetary value. It can be used for buying product online in various sites, paying bills, sending money to someone, booking accommodation, getting your favorite dishes from nearby restaurants, etc. Today all our devices are connected through the internet and mobile phones. It has become necessity for all the humans in today's world. This seminar undertakes a thorough examination of the security issues involved in the field of M-commerce. Due to the transaction over the internet, M-Commerce creates more secure than E-Commerce. In this seminar, security measures in M-Commerce, wireless Security, and the application of key generation, authentication and SSL Layer and its issue while making transactions will be discussed. Issues that are occurred in online transaction are also being discusses in M-Commerce.

**Keywords:** Mobile, security, E-commerce, M-commerce, Authentication.

## 1. Introduction

M-commerce is defined as conducting business or a service application over the internet. The transactions can be carried out from fixed locations at anywhere at any given time. With growing technologies, M-Commerce today has widespread usages. In present, Mobile phones are going to be looked upon as a mode of payment mechanism with the help of communication device. Mobile phones have replaced paper money and even credit cards. M-commerce includes: purchases on mobile web and apps, mobile payments, mobile gaming, mobile money transfers, m-banking, and mobile financial services. But beyond the positivity of M-Commerce, it poses serious security issues. Customers have many concerns like privacy and security. We cannot neglect customer's primary issue.

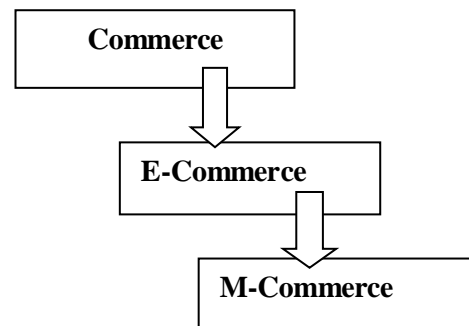
**COMMERCE:**Commerce deals with exchange of goods and services of economic value between producer and consumer. With invention of new technologies and methods, commerce has taken many forms. The way of dealing, exchanging of goods and services has undergone massive changes with days passed on. With competition emerging, consumers becoming more aware and having more choices, marketers searching for innovative ways that how to deals with Customers to be in forefront to break the competition.

**E-COMMERCE:**E-commerce is buying and selling of products, services by business and consumers through an electronic medium, without using any paper documents. E-commerce, stands for electronic commerce, on the internet, it pertains to a website, which sells products or services directly from the site using a shopping cart or shopping basket system and allows payments by using a cards, e-banking, cash on delivery, etc.

**M-COMMERCE:**Mobile Commerce is known as M-Commerce. M-Commerce are used to buy and sell goods by using the wireless devices like cell phones, personal digital assistants and other hand held devices that have operated with Internet access. By using M-Commerce we can access

advanced mobile applications and high speed services and we can use this devices remotely, anywhere at any time. We can use the same hand held device for both Telecommunications and for bill payment and account evaluation. M-commerce is a subset of E-commerce.

**"Internet + Wireless + E-Commerce = M-Commerce"**



**Fig1. Flow of M-Commerce**

M-Commerce enables users to access the internet without needing to find a place to plug in. Different types of on-line transactions are carried out using mobile phones, mobile applications and internet. People can carry and access mobile phones with preserving the privacy anytime anywhere. Thus, ubiquity, mobility, flexibility, reachability features of M-Commerce make people possible to do shopping, search various products, transfer funds, ticket booking, utility bill payment anytime anywhere. Mobile money transfer, Mobile ticketing, Mobile vouchers, coupons and loyalty cards, Location-based services, Information services are the M-Commerce services which the mobile subscribers can use through different mobile applications using internet.

In this seminar I have discussing about the SSL Layer. It also discuss about the online transaction security. This seminar contains security issues in M-Commerce and How to overcome the issues occurred in M-Commerce.

## 1. Analysis Of Problem

**2.1 Issues in Online Transaction for E-Commerce**

E-commerce provides security in online transaction so that unauthorized person cannot access and modify the data. Ecommerce security provider does not provide complete security, we need to improve and implement a completely secure system. Some of security features are as follow:-

**A. Authentication**

In authentication, username and password of the user are matches with entries in the database and if the detail matches then he is authenticated as a genuine user and is given the rights to access the information. Authentication is a process of giving the authority to the individual to change the information according to the situation. It verifies that the person is an authentic user and wishes to access his account and only once the authentication is approved the system lets the user to login.

**B. Authorization**

After authentication, the person can make the necessary changes to the data. Authentication and authorization goes parallel. If you have the authentic username and password, then you are an authorized person and are allowed to make the essential modifications with the data.

**C. Encryption**

Encryption provides the means of securing the information using an encryption key in order to protect the confidentiality of the individual. Using this technique the data is encoded into an encrypted form and only an authentic person having the decryption key is able to access the secured information.

**3.2 M-Commerce Security Concerns**

Main concern of M-Commerce is the security aspect in wireless communication. Visa was among the first in the field of m-commerce to implement payment verification. Visa allows cardholders to authorize the payment in real time and makes sure that payment information sent over the network system cannot be accessed, thus enabling users to secure their visa a/c by not all owing illegal use. It helps the users by securing inter-operability when accessing the world-wide web, which is the network of networks, without directly taking care of the equipment or technology to be used and without a robust and complete knowledge. It has simply three security requirements:



**Fig 2. M-Commerce Security Concern**

**A. Confidentiality**

Today data is one of the major assets for any organization. To make it secure and confidential, we need to keep information safe from unauthorized access, for example, any personal information, bank account, government documents, credit card numbers etc. For privacy reasons, we need to keep data safe and secure.

**B. Integrity**

Data Integrity is used to save information from being modified by unauthorized users. Data has value only if it is

correct. If data is altered, it might lead to heavy losses. For example, if our account information is tampered with while transferring money to another account, the money might be lost into unknown accounts.

**C. Availability**

A user authorized can access data only when data is available. Data holds value only if the right user can access at the correct time. Hence, to access data, the user needs to have permission to avail the data.

**3.3 Features of M-Commerce**

Following are some unique features of M-commerce.

**A. Ubiquity**

Mobile devices provide customers the added ability to hold info and allow to perform the transaction from any remote location. M-commerce users are widely spread, with the similar level of access as is presented over the fixed-line technology. This exchange of info is independent of user's site.

**B. Localization**

Internet makes M-commerce more beneficial instead of the wired e-commerce. Using the location available through the GPS technology, we can easily find the location of any user. Also, through M-commerce, data can be easily sent and received at any location.

**C. Proactive functionality**

This feature ensures that the information can be shared immediately at the time of requirement. Just like 'opt-in' marketing, users may choose the given offers at any time they like.

**D. Personalization**

Generally, only a single person uses a mobile device. Mobile devices take advantage of sending and receiving message, based upon the time and address, we can also manage sound and sight. Latest advances in data-mining and Info Tech make altering conversations to separate users pragmatic and cheap.

**4.1 Technology Used In M-Commerce**

**Table 2 Technology Used in M-commerce**

Technology	M-Commerce
Device	Smart phones, PDAs
Operating System	Symbian (EPOC), Palm OS, Pocket PC, proprietary platforms.
Presentation Standards	HTML, WML, HDML, i-Mode
Browser	Phone.com UP Browser, Nokia browser, MS Mobile Explorer and Other micro-browsers
Bearer Networks	GSM, GSM/GPRS, TDMA, CDMA, CDPD, paging networks

**2. Proposed System**

**5.1 Secure Online Transaction**

**A. Cyber Security**

Cyber security is an important topic now a days. In currently, cyber security is one of the major issues for national security. Customer's trust and security is also a prime concern for any company in 21th century. Some of the other mechanisms are authentication, authorization, integrity, confidentiality, availability, non-repudiation and privacy.

**B. Transaction Authentication Number (TAN)**

Online banking services use transaction authentication number in the form of OTP to authenticate monetary transaction. TAN enhances the additional security because it

provides the two way authentication. Any transaction cannot be done without having a valid TAN if the login information is obtained, no can be done and if we lose token or document; it is rendered incapacitated without the password.

### C. Wireless Application Protocol

Wireless application protocol is an open, global specification that authorizes mobile users with wireless devices to simply access and interacts with the services and information directly. Only solution to wireless communication is WAP. WAP also allows M-commerce to share information via wireless devices and also provides functionality to the user. They can access any information from any place.

### D. Mobile Transaction Authentication Number (MTAN)

Bank's of many countries uses MTAN, first time when a user do the transaction then banks generates TAN and send to user cellular phone via SMS. SMS may include transfer details and allow user to validate that transaction is not modifying by other person and bank. The main objective of this is to provide the security to mobile transaction.

## 5.2 SSL Layer

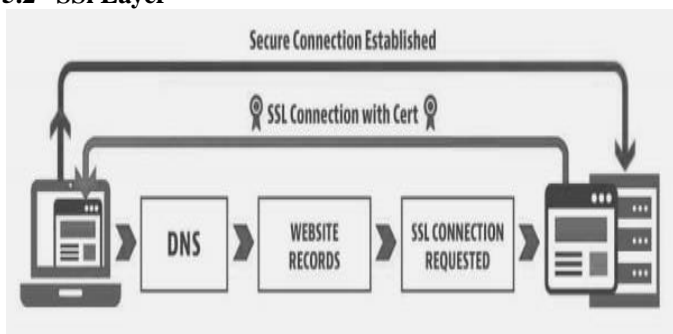


Fig 4. SSL Layer

SSL helps to establish a link of encrypted form between a web server and browser. SSL is also called as slandered security layer. SSL makes sure that the information transferred between the web server and the web browser will be always secure and integral. Netscape Inc officially applies SSL protocol. Due to its acceptance and popularity, it is now applied on all web browsers. SSL have two key objectives:

- It provides and ensure privacy, by encrypting the information that runs among the communicate party (the server and client).
- It also provides validation of the session partners, including RSA algorithm. Secure Socket Layer includes two protocols:

1) The SSL Handshake protocol, that is include the communicating between the server and client verify them and bargain an encryption key. Now we have remembered one thing that in SSL there is an overhead in starting up a SSL session.

2) Verifies protocol, in which communicate with the server and client and exchange their data within encrypted trend. Old network protocol is benefited by SSL because it is easy to lucent and integrity services of TCP protocol. It's also authenticating services and important users can submit, if they are talking server, and not few invited spoofing to the server.

In present, SSL is used to set up a security protocols. For the security reason behind secure HTTP, it is responsible for small lock in web browser. SSL works on TCP and their main objective is to secure many protocols. A SSL starts

with the handshake for transaction of costumer server. It send its credentials for server's reply. Credentials could be like user ID and password server authenticate when they get correct user ID and password. Credentials is part of information that include a public key conjoined to the server and other important bits, such as the holder of the license, its expiry, and the domain name along with the server.

### 3. Advantages

1. Mobility- as users can carry their cell phones or other mobile devices easily.
2. Broad reaches ability/ Ubiquitous computing- people can be contacted anywhere and at any time. It is also more convenient and provides instant connectivity.
3. Ubiquity-information can be accessed easily and in a real-time environment.
4. Convenience-as the devices facilitates storage of data and has Internet, intranet, extranet connections so it is convenient.
5. Localization of products and services-knowing where the user is located at this time.

### 4. Disadvantages

1. Small screens of most devices still limit types of file and data transfer (i.e. streaming videos, etc.)
2. Standards guiding applications and technology development and connection
3. WAP and SMS limited to small number of characters and text.
4. Use of graphics limited
5. Less functionality for mobile Internet over mobile phones and existing generation of and holds than for mobile computers (laptops and next generation handhelds)

### 5. Conclusion

By considering the features of M-Commerce people are using mobile applications for utility bill payment, fund transfer, railway ticket reservations, movie ticket booking and so on. Advancement and low cost of smart phones, reduced mobile internet tariff, busy life of people have attracted the people to do transactions on mobile device. Smart phones are developed to overcome the limitations of M-Commerce. Mobile applications are also developed to give more security to the transactions. Increasingly people are using mobile applications instead of web applications. M-Commerce is progressing and within some years huge number of people will be using mobile applications.

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