INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

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REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

SCOPE FOR FURTHER RESEARCH

ACKNOWLEDGMENTS

REFERENCES

APPENDIX/ANNEXURE

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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WEBSITES

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

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SECURITY ISSUES IN DBMS

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ABSTRACT

As data is very important for an organization so its security is very sensitive issue. In this paper these security issues and threats are discussed. As there are four major concepts related to the security of data which are confidentiality, integrity, authentication and non-repudiation. After that security issues are discussed like daily Daily Maintenance, Varied Security Methods for Applications, Post-Upgrade Evaluation, Split the Position, Application Spoofing, Manage User Passwords, Windows OS Flaws, Site failure, Network problems are considered . We have discussed just a few of the database security problems that exist within organizations. The best way to avoid a lot of these problems is to employ qualified personnel and separate the security responsibilities from the daily database maintenance responsibilities. There is a vast scope of research in this field. I have tried to raise the issues only.

KEYWORDS
Application spoofing ,authentication confidentiality, integrity, and non-repudiation.

INTRODUCTION
The importance of data varies from one organization to another. Data can be classified as sensitive, confidential, private, proprietary and public. There are four major concepts related to the security of data: confidentiality, integrity, authentication and non-repudiation. Confidentiality means keeping a secret. Integrity means preserving the contents of a message between the sender and he receiver. Authentication means identifying a user or a system before they can access any data. Non-repudiation means preventing the denial of an action. Security can be achieved by using cryptography, an art of codifying data/messages. Cryptography involves encryption and decryption. In encryption, a readable message is transformed into an unreadable format.

THREATS AND RISKS OF DATA
There are certain principles of security. If these principles are broken, then the security of the information is under threat. It then poses significant risks to the information. Let us assume that person A wants to send a paper check worth Rs 10000 to person B. What are the factors that A and B will think of in such a case? Person A will write the check for Rs10000, put it inside an envelope, and send it to B.

- Person A would like to make sure that no one except B gets the envelope, and even if someone does they do not get to know about the details of the check. This is the principle of **confidentiality**.
- Persons A and B would like to ensure that no one can tamper with the contents of the check (such as the date, amount, signature and payee details). This is the principle of **integrity**

CONFIDENTALITY
The principle of *confidentiality* specifies that only the sender and the intended recipient(s) should be able to access the contents of a message. Confidentiality gets lost if an unauthorised person is able to access the contents of a message. An example of compromising the confidentiality of a message is illustrated in figure 1. As we can see, user A has sent a message to user B. Another user, C (an *attacker*), somehow accesses this message, which is not desired and therefore defeats the purpose of confidentiality. This type of attack is called **interception**.

FIGURE 1: LOSS OF COFIDENTIALITY
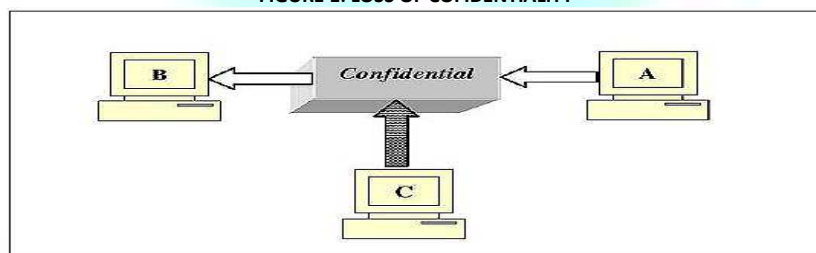
AUTHENTICATION
Authentication helps establish proof of identity. The authentication mechanism ensures that the origin of a message or document is correctly identified. For instance, suppose user C sends an electronic document over a computer network to user B by posing as user A. How would user B know that the message has come from user C, who is posing as user A? A real-life example of this could be a case of user C, posing as user A, sending a purchase request to merchant B. The merchant might willingly send the goods to C thinking that user A has requested for the goods! This concept is shown in figure 2.This type of attack is called **fabrication**.

FIGURE 2: ABSENCE OF AUTHENTICATION
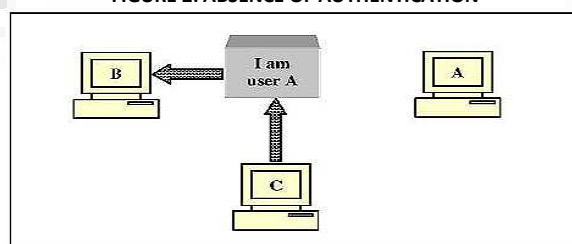
INTEGRITY
When the contents of a message are altered after the sender sends it, but before it reaches the intended recipient, we say that the *integrity* of the message is lost .For example, suppose a check for Rs10000 is issued to pay for some order. However, when the issuer sees his next account statement, he is amazed to see that the check has resulted in a payment of Rs 100000 This is a case of loss of message integrity. This type of attack is called **modification**.

NON-REPUDIATION

There are situations where a user sends a message and later denies having sent it. For example, suppose user A sends a funds transfer request to bank B. After the bank executes the funds transfer as per the instructions A says that the funds transfer instruction to the bank was never sent. Thus, A repudiates, or denies, the funds transfer instruction. The principle of *non-repudiation* defeats possibilities of denying something after having done it

Distributed databases allow sharing of data across cities, states, countries, and continents. It is truly a magnificient technology, which was unthinkable even a few years ago. Several problems arise while dealing with concurrency control and recovery issues in distributed database systems. These problems are specific to distributed databases, and are not observed in centralised database systems due to multiple entry points , exchange of encryption keys over network and corrupted nodes . Some of the main problems are listed below.

DATABASE SECURITY ISSUES

- **Daily Maintenance:** Database audit logs require daily review to make certain that there has been no data misuse. This requires overseeing database privileges and then consistently updating user access accounts. Different types of access control for different users and assesses new programs that are performing with the database can be provided by the database security manager. If these tasks are performed on a daily basis, you can avoid a lot of problems with users that may pose a threat to the security of the database.

- **Varied Security Methods for Applications:** More often than not applications developers will vary the methods of security for different applications that are being utilized within the database. This can create difficulty with creating policies for accessing the applications. The database must also possess the proper access controls for regulating the varying methods of security otherwise sensitive data is at risk.

- **Post-Upgrade Evaluation:** When a database is upgraded it is necessary for the administrator to perform a post-upgrade evaluation to ensure that security is consistent across all programs. Failure to perform this operation opens up the database to attack.

- **Split the Position:** Sometimes organizations fail to split the duties between the IT administrator and the database security manager. Instead the company tries to cut costs by having the IT administrator do everything. This action can significantly compromise the security of the data due to the responsibilities involved with both positions. The IT administrator should manage the database while the security manager performs all of the daily security processes.

- **Application Spoofing:** Hackers are capable of creating applications that resemble the existing applications connected to the database. These unauthorized applications are often difficult to identify and allow hackers access to the database via the application in disguise.

- **Manage User Passwords:** Sometimes IT database security managers will forget to remove IDs and access privileges of former users which leads to password vulnerabilities in the database. Password rules and maintenance needs to be strictly enforced to avoid opening up the database to unauthorized users.

- **Windows OS Flaws:** Windows operating systems are not effective when it comes to database security. Often theft of passwords is prevalent as well as denial of service issues. The database security manager can take precautions through routine daily maintenance checks.

- **Site failure**: There are situations when one or more sites in a DDBMS fail. In such situations, it is important that the DDBMS continues functioning. When the sites resume functioning, they must be brought back to the state of the other sites. In other words, the consistency and integrity of the database must be restored.

- **Network problems**: Many times, the communication network fails, causing one or more sites to be cut off from the rest of the sites in a DDBMS environment. An extreme case is when the sites in a DDBMS environment are cut into two portions. This is called **network portioning**. In this case, a site can communicate with other sites that belong to the same side of the partition, but not with any site that belongs to the other side of the partition.

CONCLUSION

Distributed database systems are a reality. Many organizations are now deploying distributed database systems. Therefore, we have no choice but to ensure that these systems operate in a secure environment and integrity. Security is concerned with the assurance of confidentiality, integrity, and availability of information in all forms. There are many tools and techniques that can support the management of distributed database. We have discussed just a few of the **database security** problems that exist within organizations. The best way to avoid a lot of these problems is to employ qualified personnel and separate the security responsibilities from the daily database maintenance responsibilities. We are in the process of investigating schemes by which the performance of high security level transactions can be improved without compromising with the security. Further we are looking to secure real time distributed systems by which the performance of high security level transactions can be improved without compromising the security.

FURTHER SCOPE

1. There are various issues in database security in an organization. These issues can be considered one by one and solution can be found. Here , I have only discussed the issues and technical solution of these is matter of research.
2. New and effective algorithms for daily maintenance of distributed databases.
3. Methods to find solutions which can provide high level security to databases during access.
4. To find secure real world to distributed databases.

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With sincere regards

Thanking you profoundly

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