PRESERVATION OF SOURCE CODE IN PRIVACY MODE BY USING DUMMY BASED APPROACH

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ABSTRACT: In scenarios such as healthcare applications, patients are monitored using wireless body area networks (WBANs). Transmitting the generated events without hiding the distribution or even the rate of the generation of such data breaches patient's privacy to the adversary. In this paper, we augment dummy packets with original ones to change the statistical behavior of the source behavior and thus mislead the adversary. The former is known as data-oriented privacy and employs encryption methods to protect data, while the latter is known as context-oriented privacy, which focuses on preservation of the contextual information such as the location and the time when a message is generated The presented method models the original packets and dummy ones with a preemptive resume 2-priority queueing system and then using information theory attempts to maximize the Fano lower bound of the best estimation of the adversary's speculation.

I. INTRODUCTION

A reliable method of preserving the rate privacy that copes with the flow conservation law is to transmit original packets augmented with probabilistically dummy ones so as to change the observable aggregated traffic rate. In the latter case, in spite of the protection that data encryption might provide, there are many aspects related to the statistical behavior of the source that remain unprotected by conventional security mechanisms. Complement to the data encryption methods, other techniques are required to protect such contextual information to preserve the privacy of the sources and have been the focus of attention of research studies during the past few years. The former is known as data-oriented privacy and employs encryption methods to protect data, while the latter is known as context-oriented privacy, which focuses on preservation of the contextual information such as the location and the time when a message is generated. The main contributions of this research have been listed below. 1) A model using preemptive resume priority queue is presented that captures the behavior of augmented dummy packets to the original ones. Knowing the fact that dummy packets increase the rate and thus may shift the system to unstable situation we obtain conditions of the stability of the system. 2) Assuming that the adversary overhears the output channel and uses the optimum estimator, we obtain a lower bound for the error probability of the estimation of the adversary groundingto quantifies the source rate privacy. Thus, we make sure that adversary's estimation has a probability error which is higher than the obtained lower bound. We then prove that when the number of running applications of the source (with distinct rates) becomes large, the probability of the error of the adversary's estimation approaches one. 3) Knowing the fact that augmenting dummy packets incurs various costs to the system, we formulate a multi objective optimization problem. The cost function of the optimization problem is the weighted sum of augmenting dummy communication cost and privacy degree. 4) We augment dummy packets to the original ones such that the statistical behavior of original packets such as delay's probability distribution function is intact. This makes sure that the functionality of the source's data is not perturbed by the dummy packet which is essential for on-time delivery of messages in mission critical and real time applications. In terms of implementing the dummy's augmentation extra buffer is not needed.

II. SYSTEM REQUIREMENTS

A. SOFTWARE REQUIREMENTS

Front End	:	Java
Environment	:	Eclipse
Back End	:	My-SQL
Operating System	:	Windows XP

B. HARDWARE REQUIREMENTS

Processor	:	Pentium IV
RAM	:	512 MB
Hard Disk	:	80 GB

III. PROBLEM DEFINITION

Knowing the fact that augmenting dummy packets incurs various costs to the system, we formulate a multi objective optimization problem. The cost function of the optimization problem is the weighted sum of augmenting dummy communication cost and privacy degree. This problem is equivalent to a corresponding maximization of a multi-objective function that is the linear combination of adversary's entropy and the communication cost.

IV. MODULES

A. NETWORKCONNECTIVITY-

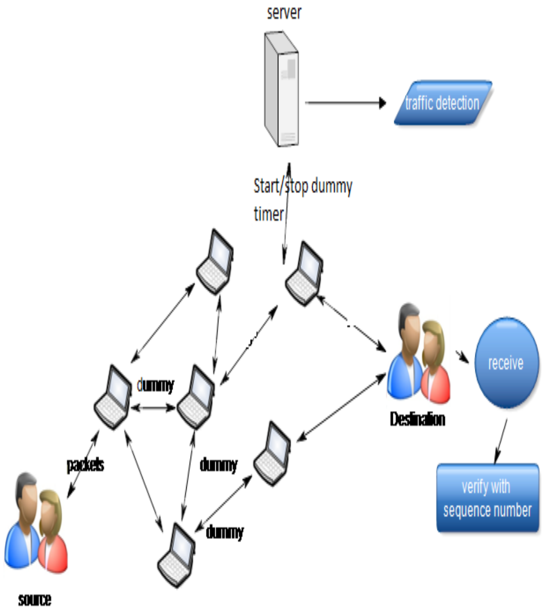
A datanetwork is a telecommunication network which allows computers to exchange data. In computer networks, networked computing devices exchange data with each other using a data link. The connections between nodes are established using either cable media or media. In this module data is send through wireless network .so data the data is not visible to anyone. Network computer devices that originate, route and terminate the data are called network nodes Nodes can include hosts such as personal computers, phones, servers as well as networking hardware.

B. DUMMY PACKET- Dummy-based approach to preserve the privacy of the source node's rates. Dummy packets are super imposed with the original ones in the communication link. The dummy packets are transmitted only in cases that the server is free and there are no packets in the original queue of the priority queue. The distribution of inter-arrival time of dummy packets is the same as the distribution of the original packets implemented by a Dummy-Timer that keeps the time between two dummy arrivals. An arriving original packet preempts the dummy packets in the service and the Dummy-Timer is frozen. When all incoming original packets are served, the timer is resumed.

C.ORIGINAL PACKET TRANSMISSION- The original packets with rates are assigned to the higher priority, and dummy packets with rate are assigned to the lower priority that when the queue is stable the departure rate is equal to the effective arrival rate. The effective arrival rate is the sum of the rates of the original and dummy packets, which corresponds to the results of flow conservation law. The proposed approach tries to mislead the adversary by transmitting the packets with a constant rate.

D.RESPONSE THE TIMER- Present a preemptive resume priority queuing model to capture the effects of augmenting dummy packets to the original ones. Using this queuing model we obtain the stability condition of the queue and then justify using the obtained stability condition. At the end of the section we employ flow conservation law to calculate the departure rate.

Fig.1 SYSTEM ARCHITECTURE



V. SOFTWARE DESCRIPTION

A.ABOUT JAVA- Java is a programming language originally developed by Sun Microsystems and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to byte code that can run on any Java virtual machine (JVM) regardless of computer architecture. One characteristic of Java is portability, which means that computer programs written in the Java language must run similarly on any supported hardware/operating-system platform. One should be able to write a program once, compile it once, and run it anywhere. This is achieved by compiling the Java language code, not to machine code but to Java byte code – instructions analogous to machine code but intended to be interpreted by a virtual machine (VM) written specifically for the host hardware. End-users commonly use a JRE installed on their own machine, or in a Web browser. Standardized libraries provide a generic way to access host specific features such as graphics, threading and networking. In some JVM versions, byte code can be compiled to native code, either before or during program execution, resulting in faster execution. A major benefit of using byte code is porting. However, the overhead of interpretation means that interpreted programs almost always run more slowly than programs compiled to native executables would, and Java suffered a reputation for poor performance. This gap has been narrowed by a number of optimization techniques introduced in the more recent JVM implementations. One such technique, known as (just-in-time compilation) JIT, translates Java byte code into native code the first time that code is executed, then caches it. This result in a program that starts and executes faster than pure interpreted code can, at the cost of introducing occasional compilation overhead during execution. More sophisticated VMs also use dynamic recompilation, in which the VM analyzes the behavior of the running program and selectively recompiles and optimizes parts of the program. Dynamic recompilation can achieve optimizations superior to static compilation because the dynamic compiler can base optimizations on knowledge about the runtime environment and the set of loaded classes, and can identify hot spots - parts of the program, often inner loops, that take up the most execution time. JIT compilation and dynamic recompilation allow Java programs to approach the speed of native code without losing portability. Another technique, commonly known as static compilation, or ahead-of-time (AOT) compilation, is to compile directly into native code like a more traditional compiler. Static Java compilers translate the Java source or byte code to native object code. This achieves good performance compared to interpretation, at the expense of portability; the output of these compilers can only be run on a single architecture. AOT could give Java something like performance, yet it is still not portable since there are no compiler directives, and all the pointers are indirect with no way to micro manage garbage collection. Java's performance has improved substantially since the early versions, and performance of JIT compilers relative to native compilers has in some tests been shown to be quite similar. The performance of the compilers does not necessarily indicate the performance of the compiled code; only careful testing can reveal the true performance issues in any system. One of the unique advantages of the concept of a runtime engine is that errors (exceptions) should not 'crash' the system. Moreover, in runtime engine environments such as Java there exist tools that attach to the runtime engine and every time that an exception of interest occurs they record debugging information that existed in memory at the time the exception was thrown (stack and heap values). These Automated Exception Handling tools provide 'root-cause' information for exceptions in Java programs that run in production, testing or development environments.

B.SOCKET OVERVIEW- A network socket is a lot like an electrical socket. Various plugs around the network have a standard way of delivering their payload. Anything that understands the standard protocol can “plug in” to the socket and communicate. Internet protocol (IP) is a low-level routing protocol that breaks data into small packets and sends them to an address across a network, which does not guarantee to deliver said packets to the destination. Transmission Control Protocol (TCP) is a higher-level protocol that manages to reliably transmit data. A third protocol, User Datagram Protocol (UDP), sits next to TCP and can be used directly to support fast, connectionless, unreliable transport of packets.

C.CLIENT/SERVER- A server is anything that has some resource that can be shared. There are compute servers, which provide computing power; print servers, which manage a collection of printers; disk servers, which provide networked disk space; and web servers, which store web pages. A client is simply any other entity that wants to gain access to a particular server. In Berkeley sockets, the notion of a socket allows as single computer to serve many different clients at once, as well as serving many different types of information. This feat is managed by the introduction of a port, which is a numbered socket on a particular machine. A server process is said to “listen” to a port until a client connects to it. A server is allowed to accept multiple clients connected to the same port number, although each session is unique. To manage multiple client connections, a server process must be multithreaded or have some other means of multiplexing the simultaneous I/O.

*D.RESERVED SOCKETS-*Once connected, a higher-level protocol ensues, which is dependent on which port you are using. TCP/IP reserves the lower, 1,024 ports for specific protocols. Port number 21 is for FTP, 23 is for Telnet, 25 is for e-mail, 79 is for finger, 80 is for HTTP, 119 is for Netnews-and the list goes on. It is up to each protocol to determine how a client should interact with the port.

E. JAVA AND THE NET- Java supports TCP/IP both by extending the already established stream I/O interface. Java supports both the TCP and UDP protocol families. TCP is used for reliable stream-based I/O across the network. UDP supports a simpler, hence faster, point-to-point datagram-oriented model.

F.INETADDRESS- The InetAddress class is used to encapsulate both the numerical IP address and the domain name for that address. We interact with this class by using the name of an IP host, which is more convenient and understandable than its IP address. The InetAddress class hides the number inside. As of Java 2, version 1.4, InetAddress can handle both IPv4 and IPv6 addresses.

G.TCP/IP CLIENT SOCKETS- TCP/IP sockets are used to implement reliable, bidirectional, persistent, point-to-point, stream-based connections between hosts on the Internet. A socket can be used to connect Java’s I/O system to other programs that may reside either on the local machine or on any other machine on the Internet. There are two kinds of TCP sockets in Java. One is for servers, and the other is for clients. The ServerSocket class is designed to be a “listener,” which waits for clients to connect before doing anything. The Socket class is designed to connect to server sockets and initiate protocol exchanges. The creation of a Socket object implicitly establishes a connection between the client and server. There are no methods or constructors that explicitly expose the details of establishing that connection. Here are two constructors used to create client sockets,Socket(String hostName, int port) Creates a socket connecting the local host to the named host and port; can throw an UnknownHost Exception or anIOException.Socket(InetAddress ipAddress, int port) Creates a socket using a preexisting InetAddress object and a port; can throw an IOException. A socket can be examined at any time for the address and port information associated with it, by use of the following methods,InetAddress getInetAddress( )- Returns the InetAddress associated with the Socket object.int getPort( ) Returns the remote port to which this Socket object is connected.int getLocalPort( ) Returns the local port to which this Socket object is connected. Once the Socket object has been created, it can also be examined to gain access to the input and output streams associated with it. Each of these methods can throw an IOException if the sockets have been invalidated by a loss of connection on the Net.InputStream getInputStream( )Returns the InputStream associated with the invoking socket.OutputStream getOutputStream( ) Returns the OutputStream associated with the invoking socket.

H.TCP/IP SERVER SOCKETS- Java has a different socket class that must be used for creating server applications. The ServerSocket class is used to create servers that listen for either local or remote client programs to connect to them on published ports. ServerSockets are quite different form normal Sockets. When we create a ServerSocket, it will register itself with the system as having an interest in client connections. The constructors for ServerSocket reflect the port number that we wish to accept connection on and, optionally, how long we want the queue for said port to be. The queue length tells the system how many client connection it can leave pending before it should simply refuse connections. The default is 50. The constructors might throw an IOException under adverse conditions. Here are the constructors,ServerSocket(int port) Creates server socket on the specified port with a queue length of 50. Serversocket(int port, int maxQueue)-Creates a server socket on the specified port with a maximum queue length of maxQueue.ServerSocket(int port, int maxQueue, InetAddress localAddress)-Creates a server socket on the specified port with a maximum queue length of maxQueue. On a multihomed host, localAddress specifies the IP address to which this socket binds.ServerSocket has a method called accept( ), which is a blocking call that will wait for a client to initiate communications, and then return with a normal Socket that is then used for communication with the client

VI. ECLIPSE PROCESS FRAMEWORK (EPF)

IDE, abbreviated as Integrated Development Environment, a programming environment integrated into a software application that provides a GUI builder, a text or code editor, a compiler and/or interpreter and a debugger. Eclipse is one of the IDE to integrate Java codes and its supportive plug-ins. The Eclipse Process Framework (EPF) aims at producing a customizable software process enginering framework, with exemplary process content and tools, supporting a broad variety of project types and development styles. The Eclipse Platform uses plug-ins to provide all the functionality within and on top of the runtime system. Most people know Eclipse as an integrated development environment (IDE) for Java. Today it is the leading development environment for Java with a market share of approximately 65%. Eclipse is created by an Open Source community and is used in several different areas, e.g. as a development environment for Java or Android applications. The roots of Eclipse go back to 2001. The Eclipse Open Source community has over 200 Open Source projects covering different aspects of software development. The Eclipse IDE can be extended with additional software components. Eclipse calls these software components plug-ins. Several Open Source projects and companies have extended the Eclipse IDE or created standalone applications (Eclipse RCP) on top of the Eclipse framework.

a.JAVA REQUIREMENTS OF ECLIPSE- Eclipse requires an installed Java runtime. Eclipse 4.2 requires at least Java 5 to run. For this tutorial, you should use Java in version 6 or higher. Java can be downloaded in two flavors: a JRE (Java Runtime Environment) and a JDK (Java Development Kit) version. The Eclipse IDE contains its own Java compiler hence a JRE is sufficient for most tasks with Eclipse. The JDK version of Java is required if you compile Java source code on the command line and for advanced development scenarios, for example, if you use automatic builds or if you develop Java web applications.

b.ECLIPSE PROJECTS- An Eclipse project contains source, configuration and binary files related to a certain task and groups them into buildable and reusable units. An Eclipse project can have natures assigned to it which describe the purpose of this project. For example, the Java nature defines a project as Java project. Projects can have multiple natures combined to model different technical aspects. Natures for a project are defined via the .project file in the project directory. Projects in Eclipse cannot contain other projects.

VII. FEATURES OF MySQL

What is Database? A database is a separate application that stores a collection of data. Each database has one or more distinct APIs for creating, accessing, managing, searching and replicating the data it holds.

Other kinds of data stores can be used, such as files on the file system or large hash tables in memory but data fetching and writing would not be so fast and easy with those types of systems. So nowadays, we use relational database management systems (RDBMS) to store and manage huge volume of data. This is called relational database because all the data is stored into different tables and relations are established using primary keys or other keys known as foreign keys. A Relational Database Management System is a software that enables to implement a database with tables,columns and indexes.

a.RDBMS TERMINOLOGY

Database: A database is a collection of tables, with related data.

Table: A table is a matrix with data. A table in a database looks like a simple spreadsheet.

Column: One column (data element) contains data of one and the same kind, for example the column postcode.

Row: A row (= tuple, entry or record) is a group of related data, for example the data of one subscription.

Redundancy: Storing data twice, redundantly to make the system faster.

Primary Key: A primary key is unique. A key value can not occur twice in one table. With a key, you can find at most one row.

Foreign Key: A foreign key is the linking pin between two tables.

Compound Key: A compound key (composite key) is a key that consists of multiple columns, because one column is not sufficiently unique.

Index: An index in a database resembles an index at the back of a book.

Referential Integrity: Referential Integrity makes sure that a foreign key value always points to an existing row.

b.MySQL DATABASE- MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed, and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons:

MySQL is released under an open-source license. So you have nothing to pay to use it.

MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

MySQL uses a standard form of the well-known SQL data language.

MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

MySQL works very quickly and works well even with large data sets.

MySQL is very friendly to PHP, the most appreciated language for web development.

MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).

MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

VIII. CONNECTING TO AND DISCONNECTING FROM THE SERVER

To connect to the server, you will usually need to provide a MySQL user name when you invoke mysql and, most likely, a password. If the server runs on a machine other than the one where you log in, you will also need to specify a host name. Contact your administrator to find out what connection parameters you should use to connect (that is, what host, user name, and password to use). Once you know the proper parameters, you should be able to connect like this:

```
shell> mysql -h host -u user -p
Enter password: ********
```

QUERY**-** A query is a question that has to be asked the data. Access gathers data that answers the question from one or more table. The data that make up the answer is either dynaset (if you edit it) or a snapshot(it cannot be edited).Each time we run query, we get latest information in the dynaset.Access either displays the dynaset or snapshot for us to view or perform an action on it ,such as deleting or updating.

IX. FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

a.ECONOMICAL FEASIBILITY
b.TECHNICAL FEASIBILITY
c.SOCIAL FEASIBILITY

a.ECONOMICAL FEASIBILITY- This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

b.TECHNICAL FEASIBILITY- This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

c.SOCIAL FEASIBILITY- The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system

X. TESTING

*a.TESTING OBJECTIVES***-** Testing is a process of executing a program with the intent of finding an error.A good test has a high probability of finding an as yet undiscovered error.A successful test is one that uncovers an as yet undiscovered error.The objective is to design tests that systematically uncover different classes of errors and do so with a minimum amount of time and effort. Testing cannot show the absence of defects, it can only show that software defects are present.

b.UNIT TESTING- Number of input parameters should be equal to number of arguments.Parameter and argument attributes must match.Parameters passed should be in correct order.Global variable definitions consistent across module.If module does I/O.Open/Close statements must be correct. Format specifications should match I/O statements.Buffer Size should match record size.Files should be opened before use.End of file condition should be handled.I/O errors should be handled.Any textual errors in output information must be checked.Local Data Structures (common source of errors!).Improper or inconsistent typing.Erroneous initialization or default values.Incorrect variable names.Inconsistent date types.Overflow, underflow, address exceptions.Boundary conditions and Independent pathsError Handling,Error description unintelligible.Error noted does not correspond to error encountered.Error condition handled by system run-time before error handler gets control.Exception condition processing incorrect.

c.INTEGRATION TESTING- Modules integrated by moving down the program design hierarchy. Can use depth first or breadth first top down integrationVerifies major control and decision points early in design process. Top-level structure tested most. Depth first implementation allows a complete function to be implemented, tested and demonstrated. Can do depth first implementation of critical functions early. Top down integration forced (to some extent) by some development tools in programs with graphical user interfaces. Begin construction and testing with atomic modules (lowest level modules).Bottom up integration testing as its name implies begins construction and testing with atomic modules. Because modules are integrated from the bottom up, processing required for modules subordinate to a given level is always available and the need for stubs is eliminated

d.VALIDATION TESING- Validation testing is aims to demonstrate that the software functions in a manner that can be reasonably expected by the customer. This tests conformance the software to the Software Requirements Specification.

e.VALIDATION TEST CRITERIA- A set of black box test is to demonstrate conformance with requirements. To check that all functional requirements satisfied, all performance requirements achieved, documentation is correct and ' human-engineered', and other requirements are met (e.g. compatibility, error recovery, and maintainability). When validation tests fail it may be too late to correct the error prior to scheduled delivery. Need to negotiate a method of resolving deficiencies with the customer

f.ALPHA AND BETA TESTING- It is difficult to anticipate how users will really use software. If there is one customer, a series of acceptance tests are conducted (by the customer) to enable the customer to validate all requirements. If software is being developed for use by multiple customers, cannot use acceptance testing. An alternative is to use alpha and beta testing to uncover errors. A customer conducts alpha testing at the developer's site. The customer uses the software with the developer 'looking over the shoulder' and recording errors and usage problems. Alpha testing conducted in a controlled environment.Beta testing is conducted at one or more customer sites by end users. It is ' live ' testing in an environment not controlled by developer. The customer records and reports difficulties and errors at regular intervals.

g.SYSTEM TSTING- Software is only one component of a system. Software will be incorporated with other system components and system integration and validation test performance.

h.RECOVERY TESTING- Many systems need to be fault tolerant-processing faults must not cause overall system failure. Other systems require after a failure within a specified time. Recovery testing is the forced failure of the software in a variety of ways to verify that recovery is properly performed.

i.SECURITY TESTING- System with sensitive information or which have the potential to harm individuals can be target for improper or illegal use. This can include attempted penetration of the system by outside individuals for fun or personal gain.During security testing the tester plays the role of the individual trying to penetrate the system. Large range of methods:Attempt to acquire passwords through external clerical means.Use custom software to attack the system.Overwhelm the system with requests.Cause system errors and attempt to penetrate the system during recovery.Browse through insecure data.

j.PERFORMANCE TESTING- For real-time and embedded systems, functional requirements may be satisfied but performance problems make the system unacceptable. Performance testing checks the run-time performance in the context of the integrated system Can be coupled with stress testing, May require special software instrumentation.
Two basics approach:
a. Black box or "Functional" analysis
b. White box or "Structural" analysis

k.BOUNDRARY VALUE ANALYSIS(STRESS TESTING)- In this method the input data is partitioned and data inside and at the boundary of each partition is tested.

l.DESIGN BASED FUNCTIONAL TESTING- Functional hierarchy is constructed. For each function at each level extrenal, non-extreamal and special value test data are identified. Test data is identified such that it will generate extremal, non-extremal and special output values.

m.CAUSE-EFFECT GRAPHING- In this method the characteristic input stimuli (Causes), characteristic output classes (effects) are identified. The dependencies are identified using specification. These details are presented as directed graph. Test cases are chosen to test dependencies.

n.COVERAGE-BASED TESTING- The Program is represented as control-flow graph. The paths are identified. Data are chosen to maximize paths executed under test conditions. For paths that are not always finite and those infeasible, Coverage metrics can be applied.

o. COMPLEXITY-BASED TEST- The Cyclomatic Complexity is measured. The paths actually executed by program running on test data are identified and the actual complexity is set. A test set is devised which will drive actual complexity closer to Cyclomatic complexity.

XI. TEST DATA ANALYSIS

During Test Data Analysis “The Goodness of the test data set" is taken into major consideration.
a.STATISTICAL ANALYSIS AND ERROR SEEDING- Known errors are seeded into the code so that their placement is statistically similar to that of actual errors.

b.MUTATION ANALYSIS- It is assumed that a set of test data that can uncover all simple faults in a program is capable of detecting more complex faults. In mutation analysis a large number of simple faults, called mutation, are introduced in a program one at a time .The resulting changed versions of the test program are called mutates. Test data is then be constructed to cause these mutants to fail. The effectiveness of the test data set is measured by the percentage to mutants killed.

XII. TEST RESULTS

The listed tests were conducted in the software at the various developments stages. Unit testing was conducted. The errors were debugged and regression testing was performed. The integration testing will be performed once the system is integrated with other related systems like Inventory, Budget etc. Once the design stage was over the Black Box and White Box Testing was performed on the entire application. The results were analyzed and the appropriate alterations were made. The test results proved to be positive and henceforth the application is feasible and test approved.

XIII. CONCLUSION

This paper presented a preemptive resume 2-priority queueing system to augment dummy packets with original ones to change the statistical behavior of the source behavior and thus mislead the adversary. Then it has employed information theory results to investigate the maximum of the Fano lower bound of the best estimation of the adversary speculation and thus quantify the privacy degree of the source. Augmenting dummy packets is inefficient especially when the number of running applications is small and the gap between the rate of the applications are high.

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