Improvised Convert Channel Capacity In Mls Networks

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ABSTRACT

Transmission of data from a lower-level system to higher-level system without response in return will be not able to be relied upon and not firm or unsafe even with acknowledgements. In order to provide safe & secured, reliable and performance through a Communication buffer, this transmits the messages to the high system and provides a controlled stream of acknowledgements to the low system. Communication buffer transmits the messages and also acknowledgement or token between two systems. When the Communication buffer gets full, the transmission could block, known as noise and transmissions of sending files get affected from the destination process to the source process. To overcome this problem, in this paper we have implemented 2 methods where the first method will remove all the acknowledgements in the Communication buffer and in the second method, Communication buffer size is increased dynamically to allow the transmission.

Keywords--- Convert channel, Communication buffer, multilevel secure systems (MLS*)*

I. INTRODUCTION

Computer users deal with highly reliable and sensitive information use systems that are committed to any multi level system [1] i.e., from lower- level security system to higher-level systems. These Secure system stores and processes information with varying sensitivity levels in a secure and trusted manner. Information shared between two or more different security levels is reasonably quite heavy in the secure system, which encumber data transfer in high speed. The low user sends a process to high user with token and then high user sends the token back to low user when high user gets the process. If the high user doesn't received the file from low user it will not send the token until the process received by the low user. While sending a process the process stores a data in a Communication buffer and then it will be transferred through covert channel to the high user. The Communication buffer [4] adds random noise to conventional communication methods to reduce the covert channel capacity. There have been other attempts to reduce timing channel capacity by introducing random noise to the system

II. REVIEW OF LITERATURE

In a generic network communication mechanism, The Communication buffer can be used to transfer messages between any High security clearance machines to low security clearance machines. When the Communication buffer gets full because of noise added by the Communication buffer, and the random variable of noise do not change with time.This is necessary in order to quantify fundamental limits on the capacity of the covert channel [3]. Moreover, in many communication systems noise is the worst possible form of bits. Assume that it is the same for Communication buffer as well, although not conclusively justified it. The Communication buffer has all features like reliability, performance and practicality, at the same time, the convert channel[5] capacity of the Communication buffer is less than 1/n times that of the convectional communication mechanisms, where n is the buffer size.

III. METHODOLOGY

The Communication buffer is used to transfer data between any security level systems. Our approach is different from the others in the sense that ours pay most no performance reduces timing channel capacity.

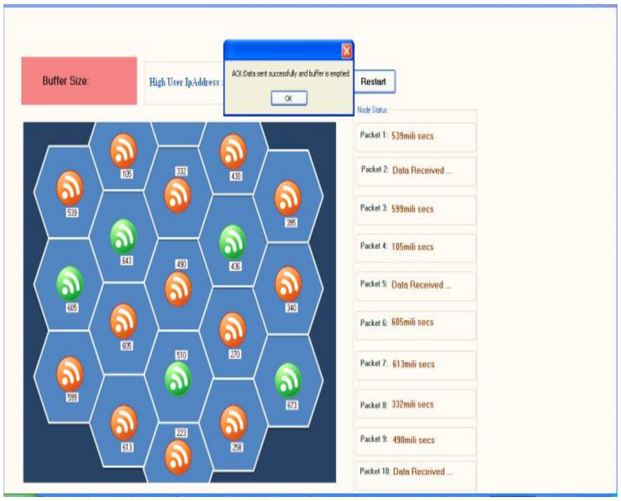
This Communication buffer needs to be trusted in the sense that the system designer has an assurance that the Communication buffer will do only what it is supposed to do. In a sense, the Communication buffer is blocking any message flow from the destination process to the source process. Two methods are implemented to overcome the criticism in existing system. A measure of probability of detection is derived using statistical inference techniques. The first proposed system as mentioned earlier, Noise [2] detection and removal method will assure the transmission of data or packets through Communication buffer, even though it is fully occupied by data and acknowledgement.

A. COMMUNICATION BUFFER

This method makes possible to tighten the bound of convert channel capacity and transmits the mediocre data and clears the acknowledgement to make adequate space to the Communication buffer for all the transmissions. In case the file size is not mediocre, alternate method i.e., Dynamic multiplication method have been initialized. Whenever the files sent through the Communication buffer, Mechanism to choose the convert channel (Communication buffer capacity) values according to security requirements. Method used to choose the size of convert channel ‘n’ (finite) or dynamic convert channel size ‘m’.

IV. EXPERIMENTAL RESULTS

The Communication buffer **Fig 2 & Fig 3** receives a process sent by the low user the stores here and transfers it to the high user by using nodes in a cloud network. And then sends the acknowledgement to the low users that the files successfully transferred from the Communication buffer and meanwhile the high user also sends the acknowledgement to the low users that file received successfully.



Buffer Size:

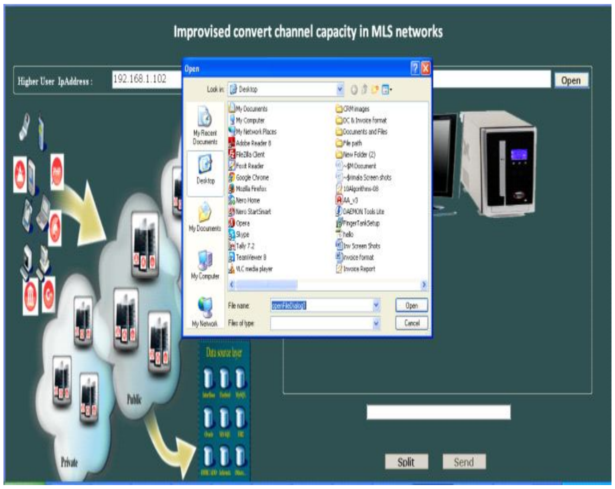
High User IpAddress :

ACK:Data sent successfully and buffer is emptied

Node Status :

Packet 1: 539mili secs
Packet 2: Data Received ...
Packet 3: 599mili secs
Packet 4: 105mili secs
Packet 5: Data Received ...
Packet 6: 605mili secs
Packet 7: 613mili secs
Packet 8: 332mili secs
Packet 9: 490mili secs
Packet 10: Data Received ...

Fig. 2. Router (Communication buffer):



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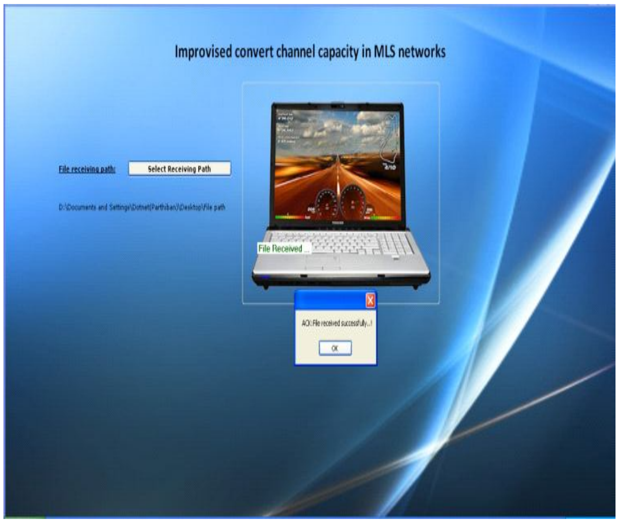
Higher User IpAddress : 192.168.1.102

File name: openFileDialog1

Fig.3.File transferring from low user

Acknowledgments to High User:



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File receiving path:

D:\Documents and Settings\Dotnet(Parthiban)\Desktop\File path

File Received ...

ACK:File received successfully...!

Fig.4.File transferring from low user

V. CONCLUSION

When a Communication buffer is used to cut-off transmission between two user's secure level systems with various consent levels, and the Communication buffer becomes full. This Communication buffer sense that the system designer has an assurance that the Communication buffer carry over the hypothetical which have to done. In a sense, the Communication buffer is blocking any message flow from the destination process to the source process with safe, secured transmission.

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