

- 1)Name of the Course: CN [IT2008]: Computer Networks
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  - 3)Innovative method practised: Problem Solving,Case Study
- Case Study

## A Case Study In Secure File Transfer: Implementing Secure FTP with SSL In Healthcare Organization

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*Abstract*— Secure electronic file transfer are done between organizations has become essential for business transactions and communication. Healthcare organizations are no exception to this requirement. The ability to leverage the Internet to share protected health information also known as PHI or other sensitive information between health care organizations are going on increasing. From individual file encryption and VPN's (Virtual Private Networks), to a complete EDI (Electronic Data Interchange) system, a plethora of methods and applications exist for securing the transfer of files and data over the Internet.

*Keywords*—File Transfer Protocol (FTP), Secure Sockets layer (SSL), Virtual Private Network (VPN), Electronic data interchange (EDI).

functioned as a transparent gateway for data interchange between core back-end systems and provided limited access from the Internet from health care organization partners. The FTP server was a member server in a mixed Novell Netware/NT Domain environment where the NT Domain was interconnected to Novell Netware via a special redirector installed on the NT domain controllers.

### *B. Before-Methods Of Access*

Access to the FTP server was permitted not only via standard FTP from internal trusted systems, but also via network shares configured on the FTP server itself. Limited FTP access from the Internet was also devised. FTP access was permitted by any standard FTP client application on the trusted LAN with a valid FTP user name and password.

Problem Solving:

## Ex 7

- A point-to-point satellite transmission line connecting two computers uses a stop and wait protocol and has the following properties
- Data Transmission Rate (DTR) = 64 kbps
- Frame Size = 2048 bytes
- One Way Propagation Delay = 180 ms  
Acknowledgement Size = 10 bytes
- Processing Delay of one computer = 25 ms
- Determine the throughput and Utilization.

## Sol 7

- Solution:
- Frame Transmission Time =  $(2048 \times 8) / 64000 = 0.256s = 256ms$
- Ack Transmission Time =  $(10 \times 8) / 64000 = 1.25 ms$
- Total time to transmit frame and receive ack is  
= Frame Trans Time + Ack Trans Time + Proc Delay + 2xProp Delay  
= 256 ms + 1.25 ms + 2x25 ms + 2x180 ms  
= 256 ms + 1.25 ms + 50 ms + 360 ms  
= 667.25 ms  
= 0.667s

## Continued...

- Throughput =  $(2048 \times 8) / 0.667 = 24.563$  kbps  
a = Prop Time / Transfer Time =  $180 \text{ ms} / 256 \text{ ms} = 0.7$   
Utilization= $u = 1/(1+2a) = 1/(1+1.4) = 41.67\%$