CET442 Lab #7

Implementation of a SMTP/POP3 E-Mail Server

Introduction

To complete the array of network services that are provided to your company, you'll now install and configure electronic mail. An e-mail system uses two different types of software -- server and client.

The server software is responsible for transferring mail into and out of your domain, and it is also a temporary resting place for incoming mail. Client software installed on each user's machine talks to the mail server whenever messages are to be sent or received.

Two different protocols are used for e-mail, SMTP and POP3. SMTP is the Simple Mail Transfer Protocol, and it operates on TCP port 25. It is used to transmit outgoing messages from a client to a server, and from source mail server to destination mail server. POP3 is the Post Office Protocol version 3, operating on TCP port 110. The client uses the POP3 protocol to retrieve its mail (if any) from the server.

Other versions of these protocols are in use. Incidentally, part of the problem of spam (unsolicited e-mail) lies in the openness of these protocols; there's literally no security built into them.

DNS plays an important role in the exchange of electronic mail. Before a message can be transmitted to a domain, the sending server computer needs to know which computer in the receiving domain will be the mail server. This is learned by querying the DNS server in the domain for a MX (Mail-eXchanger) record. The MX record tells the sender what computer name in the domain to contact to send the incoming messages; this computer is of course, the mail server. It then can learn the mail server's IP address normally by requesting that an A (Address) record be sent, if it was not sent previously in response to the MX request.

Therefore, to successfully setup e-mail for your domain, you must do three things. First, you must configure DNS with the appropriate information so that the outside world can find your mail server. Second, you must configure the mail server; and third, you must provide client software for your users.

Client software can be simple (Eudora Lite, a freeware program), or complex (Outlook, an very insecure and highly dangerous program). It is also possible to set up users so that they need no special software at all, other than a web browser, by using a web-mail front end to your mail service. Software such as SquirrelMail provides such an interface.

It is recommended that you try using the Mercury Mail and Pegasus Mail freeware packages in this lab; however, you may use any packages of your own choice.

Procedure

1. Choose which computer in your domain will be the e-mail server, and configure DNS with the appropriate records to support it.

2. Choose mail server program and install it onto your mail server. With most mail servers, you will need to set up a mail user account for each user of the system.

   Read and follow the documentation that comes with your mail server.

3. Install clients on several client computers. You'll need to configure the client with the information about the mail server. Eudora is highly recommended as a "simple and easy to use" client.

   Do not install server and client software onto the same computer. This can cause some server software to fail.

4. Demonstrate to the instructor that you can successfully transmit e-mail between several clients within the domain.

Report Requirements

1. Detail the installation procedure needed for the server and client software, giving all critical setting values (including DNS settings). Show screen captures where appropriate.

2. Packet capture (using Ethereal) one SMTP transaction between a client and the server. This transaction will take place when a client transmits a complete mail message to the server.

   TIP: Use the Follow TCP Stream command of Ethereal to follow the transaction accurately.