

E-MAIL, SMTP and FTP

Simple Mail Transfer Protocol (SMTP) and E-mail

The Simple Mail Transfer Protocol (SMTP) plays a major role in transferring Internet electronic mail. This protocol transfers electronic mail (e-mail) from the mail server of a source to the mail servers of destinations. SMTP is older than the Hypertext Transfer Protocol (HTTP), the Web communication protocol, and imposes certain restrictions, such as limits on the size of e-mail content.

In [Figure 5.8](#), user 1 is in a residential area, has an Internet service provider (ISP), and is sending an e-mail to user 2, working in an organization. Suppose that the mail servers are isp.com and organization.com, respectively. Thus, user 1 and user 2 have e-mail addresses of user1@isp.com and user2@organization.com, respectively. The procedure for an e-mail exchange between user 1 and user 2 is as follows.

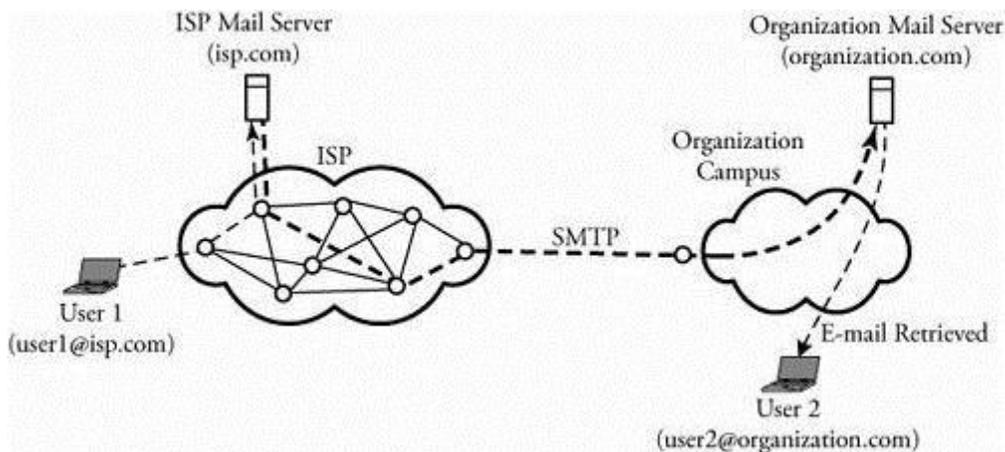


Figure 5.8. Two users exchanging e-mail through SMTP

Begin SMTP Between Two Users

1. User 1 provides user 2's e-mail address (user2@organization.com) and composes its message.
2. User 1 sends the message to its mail server (isp.com).
3. Server isp.com places the message in its queue.
4. SMTP on user 1's mail server notices the message in the queue and opens a TCP connection with the organization mail server (organization.com).
5. Initial SMTP handshaking takes place between the two servers.
6. The message is sent to organization.com's mail server, using the established TCP connection.
7. User 2's mail server receives the message and then puts it in user 2's mailbox, ready to be retrieved by user 2.

File Transfer and FTP

File transfer is another computer networking application. It is always essential that files and information geographically distributed over different locations be shared among the members of a working group. In a certain application, files are typically saved in a server. A user then uses a file transfer protocol to access the server and transfer the desired file. Two file transfer protocols are FTP and SCP.

File Transfer Protocol (FTP)

File Transfer Protocol (FTP) is part of the TCP/IP suite and is very

similar to TELNET. Both FTP and TELNET are built on the client/server paradigm, and both allow a user to establish a remote connection. However, TELNET provides a broader access to a user, whereas FTP allows access only to certain files. The essence of this protocol is as follows.

Begin File Transfer Protocol

1. A user requests a connection to a remote server.
2. The user waits for an acknowledgment.
3. Once connected, the user must enter a user ID, followed by a password.
4. The connection is established over a TCP session.
5. The desired file is transferred.
6. The user closes the FTP connection.

FTP can also run through a Web browser.

Secure Copy Protocol (SCP)

The Secure Copy Protocol (SCP) is similar to TELNET but is secure. Incorporated in the SCP structure are a number of encryption and authentication features that are similar to those in SSH. Also similar is the exchange of commands between local and remote hosts. SCP commands automatically prompt the user for the password information when it is time to access a remote machine. SCP cannot handle file transfer between machines of significantly different architectures.

Source : <http://elearningatria.files.wordpress.com/2013/10/cse-vi-computer-networks-ii-10cs64-notes.pdf>