IK2213 Network Service and Internet-Based Application Project 1

Webmail (Advanced)

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Introduction:

This report corresponds to the assignment 1 of IK2213 course. In our project, we built a HTTP server and a SMTP client. The HTTP server listens to the port 80. When a client browser sends a request, it will return a HTML mail webpage to the client. After the client fills in the needed email information, the HTTP server will send the email to the SMTP server (mail.ik2213.lab) using SMTP client. Our HTTP server support sending email with Swedish characters in email subject and content. The SMTP Server in webpage is not compulsory for the user. If the delay sending is required, there is a webpage with all the delay email record on it. The user will receive a confirm letter after sending the delayed email. Errors will be told in the feedback webpage to the user.

Problem:

HTTP Server:

1) Parsing the HTTP document coming from client browser.
2) URL decoding and Quoted-Printable encoding.
3) Error check for the input email addresses.
4) Timer for the delay email.

SMTP Client:

1) Command Communication with the SMTP server.
2) MIME header editing.

Solution:

HTTP Server:

1) Parsing the HTTP document coming from client browser.

HTTP protocol is document-based. The HTTP server support two methods: GET and POST, otherwise it will return an ERROR 501 NOT IMPLEMENTED error.

For the GET method, if the required file name is “/” or “/index.html”, it will return the webmail html webpage. If the required file name starts with “/statuspage”, it will return the status page that saving all the records of delayed emails. Otherwise it will return an ERROR 404 FILE NOT FOUND error.

2) URL decoding and Quoted-Printable encoding.

For the POST method, the HTTP server will first go through the documents until get a string named “Content-Length”. The following substring is the content length of all post message. The next step is parse different parts: sender address, receiver address, subject, SMTP server, content, delay time. Note all these parts is URL encoded. Sender address, receiver address SMTP server and delay time can be easily URL decoded. The subject part and content part need to be Quoted-Printable encoded. What’s more, for the content part, the char “.” need to be treated specially. The SMTP protocol delete every single “.” at the beginning of each line in mail content.
If the mail content starts with a “.”, one more “.” will be added after the beginning “.”. Every time there is a new line character (%0D%0A in URL encoding), a “.” is added after the new line character so that the coming line can be show properly.

3) Error check for the input email addresses.

First the HTTP server will examine the syntax of the input email addresses. Wrong input addresses will be treated as an error and return to the user. Mail server address will be looked up from the DNS name server if the SMPT Server part is blank. Null will be returned if it cannot find any mail server address from the input email address and error will be return to the user.

4) Timer for the delay email.

For the delayed email, a timer will be created and the current submitted time will be saved and the future sending time will be calculated and both time with the email addresses and subject will be save in a list and be returned in the status page.

NOTE that all the sending record will be saved, even though the SMTP server consider the input email address is not valid and reject the mail. A confirm mail with subject “Mail Sent” or “Mail Failed” will be sent to the sender email address if the sender email address is valid.

SMTP Client:

1) Command Communication with the SMTP server.

SMTP is a command-based protocol. The SMTP client need to communication with SMTP server using single command line. The client will examine every feedback from the SMTP server. Then the client will itself return a feedback value to the HTTP server indicating the sending status.

2) MIME header editing.

MIME header need to be added at the beginning part of the DATA content in SMTP protocol. Since the Subject part in the MIME header is in ASCII, encoded-word is needed here.

Discussion and Conclusions

More attachment types can be supported.

Base64 encoding can be supported.