Mime content types

We are still in the content types, and the last one that we discussed was the application , octet stream generally binary data consisting of 8 bit bytes but now the application consists of PDF files so that it will become application /PDF some part of the email contains PDF format you can just imagine right now what kind of email is that the end ,we are going to put all the necessary info inside this we are going have multipurpose main but still mime works on the top of SMTP , mime doesn't replace SMTP the actual career path is SMTP still application layer protocol we are still providing security in the application layer and even in PGP and SMIME is still application level security

Mime transfer encoding,

Transfer encoding means we have to convert those mpeg data's and video data and some executables in to text SMTP need text and for that one we use transfer encoding and one of the thing that you know is radix 64 encodes data by mapping 6 bit block of input to 8 bit block of output all of which are printable ASCII characters , so we use this one in PGP what about 7 bit the data is all represented by short lines of ASCII characters in other words short lines mean you don't have the character is 8 bit parity and remove the parity and the 7 bit pure short ASCII character , 8 bit lines are short and there are none ASCII character octets with high order bit set is used, binary not only main non ASCII character the lines are not short enough for SMTP to transport ,quoted printable is good thing encoded in such a way that if the data if the data being encoded is ASCII text the encoded form of the data becomes largely recognizable by humans , did you understand ,7 bit 8bit, what I did is I have binary 10 10 and I m going to select 8 bit from there and im going to look at the ASCII character and im going to select the ASCII character or im going to select 7 bit im going to go to ASCII not as said here but still printable that is ok for me quote printable will make sure that this non ASCII character are not appearing and base 64 all of them are printable and x token this is another technology this is named non standard encoding for example you are a company , and you develop and application and your own encoding scheme for your application , if you don't have this x token we will be limited to these guys , you have developed a new technology , and if you develop a new technology which is not standard you can use it as x token so it is going to accommodate those new things ,if you are using x token then they are using your one representation of your data the client of that other side should have the same data , if you go in external link then you might have problems client side or recipient side or client will not be able to recover the mail securely that was transfer encoding , lets have look at the real mime message that is transferred to destination

Mime message structure

There will be version number headers basically its starts mime version 1 and its going to have the SMTP version like from this lady to this guy ,subject I m going to show the example of multipart mime message now we are going into the content of the mail content type multipart ,video audio and stuffs,, look at the subtype mix ,that means this part is independent of each other on receiver side presented in the order appeared in the mail ,if the video is first it is going to appear in the mail , I have to define where the part starts in other words im going to define where the boundary starts it says unique boundary oneadn your message is going to go there and nothing to do with two parts ,I have to know the start

part and that is represented using two hyphens unique boundary 1 my first part is going to start point , some text goes here, text multipart and this is the second multipart shows end of this part and the beginning of next part ,again I don't have any thing in the first part I have simple text message but look at the second part it says the content type ,text plain ,ASCII representation of text ,this is end of that part and then another part start that is content type multipart parallel , that is it is multipart and it divided inside the message that is embedded multipart. So that I have to have another boundary that defines second boundary and it says parallel it says no order is required and the boundary is unique boundary the first part of the second multipart starts here, 2 hyphen ,Unicode boundary 2 content type is audio basic that is this part will have audio information format it from the basic standard it will be audio/mpeg this data is binary and I have to convert this binary data using one of those encoding schemes so that it is going to be suitable for SMTP ,as it say s her content transfer encoding is base 64 so that the data right here is audio data is actually stored in the form of base 64 when you receive on the other side you are going to receiver the mpeg data from the base 64 and play it on the machine and that is the end of the part , second part starts with content part video jpeg or image and transfer data goes there and that data video or image data is represented using base 64 so that image or video is going to go there, either the image can be played first or image can be played first or later or image or video later and then at the end im having this unique boundary 2 at the end of the address that shows the end of unique boundary 2 ,we didn't have the end in unique boundary 1 as we are still in unique boundary 1 ,as another ,multiplication part , we completed that one and we go back to boundary 1 and here starts here and it says content type text enriched ,so all the bouls and everything is going to be right here and the other one content type original rfc that means your original SMTP message all the address and everything is going to go look at here at the end I have another hyphen that shows the end of unique boundary 1 , now you receive this one and you are email client what will happen on your side, you are going to check the messages and what you are do in unique boundary 1, text message ,you are going to present that one then you re going to go to multipart first one is audio and the second one is video so which one is going to go first , we don't know there is no rule but it is rule in boundary 1 as it is mix so text is going to be first then audio or video then enriched text, and we are not going to do anything with rfc822 message type I have the mime capabilities I can display the mime if I can display the mime I dont need this one you may even argue that some text message you can say generally what is going to happen is you are origin to have this one and this is the alternative version of actual text ,if someone cannot display the message then it cannot display the original text basically , as you see now im transferring this thing to destination so this way im able to solve the problem of SMTP , are we clear with SMIME this is the standard and every email client is using this mime standard if receiver has the SMTP it is going to ignore all the parts , {question from a student}. Browsers are not email clients, if you are talking about web based mails then you are not downloading anything to your system basically, you are playing the things in the inbox browser connection when you are login you are logged in email message ,they are able to use mime they are standards for web based mails im downloading web based mails by outlook client so it is very easy fro me to go and configure the outlook for signed message , im not keeping anything on the server of yahoo or gmail , im just downloading it my machine , this is mime and also we also structure that says native form or canonical form native form is the unique structure text files it depends on OS you are going to have different forms generally we are using native forms and we are having another option called canonical form it says the entire body including out of band record

lengths and possibly file attribute information is converted to a universal canonical form that means this is a standard , the system is going to handle it the major unix and sun systems are going to handle it they a re going to convert it and it will work for them also ,so mime is a standard for everybody not only for windows environment it is standard for unix, linux ,macintosh and windows and it depends on what client you are using and most of the times you are using windows clients ,in other words SMTP implementation in OS is already mime implementation and then we are going to go into mime and make it secure how we are going to make it secure, we are going to define 4 headers again and content ,5 different content types and these are totally related to security.