

## Sep.24<sup>th</sup> Homework (Computer Networking)

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### R14. Why is it said that FTP sends control information “out-of-band” ?

*Solu: Because FTP uses a separate control connection, FTP is said to send its control information out-of-band. In Chapter 6 we shall see that the RTSP protocol, which is used for controlling the transfer of continuous media such as audio and video, also sends its control information out-of-band.*

### R15. Why do HTTP, FTP, SMTP and POP3 run on top of TCP rather than on UDP?

*Solu: Also Because TCP is more reliable, and HTTP, FTP, SMTP, and POP3 cannot be affordable using UDP while UDP cannot transmit packet and guarantee a well order delivery. TCP is a connected-oriented network so packet will be delivered to the destination.*

### R16. Print out the header of an e-mail message you have recently received. How many Received: header lines are there? Analyze each of the header lines in the message.

*Solu:*

*Received: by ajax-webmail-Jdweb4 (Coremail) ; Sat, 12 Sep 2020 16:45:09 +0800 (GMT+08:00)*

*X-Originating-IP: [172.24.27.125]*

*Date: Sat, 12 Sep 2020 16:45:09 +0800 (GMT+08:00)*

*X-CM-HeaderCharset: UTF-8*

*From: =?UTF-8?B?5YiY5Li95aic?= <18281156@bjtu.edu.cn>*

*To: wangzilong@bjtu.edu.cn*

*Subject: =?UTF-8?B?6K6h566X5py65a2m6Zmi5YiY5Li95aic5Zui5a2m57uE?=  
=?UTF-8?B?57uH5a2m55Sf5bmy6YOo55m76K6w6KGo5Y+K5rGH5oC76KGo?=?*

*X-Priority: 3*

*X-Mailer: Coremail Webmail Server Version XT5.0.12 build 20200616(0f5d8152)*

*Copyright (c) 2002-2020 www.mailtech.cn bjtu.edu.cn*

*Content-Type: multipart/mixed;*

*boundary="-----\_Part\_88599\_1242468645.1599900309091"*

*MIME-Version: 1.0*

*Message-ID: <7a2a7812.61cc.174817d5664.Coremail.18281156@bjtu.edu.cn>*

*X-Coremail-Locale: zh\_CN*

*X-CM-TRANSID:b55wygAHi5WVilxfs9FdAA--.7808W*

*X-CM-SenderInfo: qrysmiarvwquxmwxhvlgxou0/1tbiAhARA1yR0G-QcAABsT*

*X-Coremail-Antispam: 1Ur529EdanIXcx71UUUUU7lcSsGvfJ3ilAlbVAYjsxl4VWUJw*

*CS07vEb4IE77IF4wCS07vE1I0E4x80FVAKz4kxMIAIbVAFxVCaYxvl4VClwcAKzIAtYxBI  
daVFxhVvjvDU=*

*-----\_Part\_88599\_1242468645.1599900309091*

*Content-Type: multipart/alternative;*

*boundary="-----\_Part\_88601\_1465927584.1599900309092"*

-----=\_Part\_88601\_1465927584.1599900309092

Content-Type: text/plain; charset=UTF-8

Content-Transfer-Encoding: 7bit

-----=\_Part\_88601\_1465927584.1599900309092

Content-Type: text/html; charset=UTF-8

Content-Transfer-Encoding: 7bit

-----=\_Part\_88601\_1465927584.1599900309092--

-----=\_Part\_88599\_1242468645.1599900309091

Content-Type: application/vnd.openxmlformats-officedocument.wordprocessingml.document;

name="=?UTF-

8?B?6ZmE5Lu2Mu+8muWMI+S6rOS6pOmAmuWkp+WtpuWbouWtpue7hOe7hw=?=  
=?UTF-8?B?5a2m55Sf5bmy6YOo6lCD5a+f55m76K6w6KGoLmRvY3g=?="

Content-Transfer-Encoding: base64

Content-Disposition: attachment;

filename="=?UTF-

8?B?6ZmE5Lu2Mu+8muWMI+S6rOS6pOmAmuWkp+WtpuWbouWtpue7hOe7hw=?=  
=?UTF-8?B?5a2m55Sf5bmy6YOo6lCD5a+f55m76K6w6KGoLmRvY3g=?="

**R17. Suppose Alice, with a Web-based e-mail account (such as Hotmail or Gmail), sends a message to Bob, who accesses his mail from his mail server using POP3. Discuss how the message gets from Alice' s host to Bob' s host. Be sure to list the series of application-layer protocols that are used to move the message between the two hosts.**

*Solu: The message is first sent from Alice' s host to her mail server over HTTP. Alice' s mail server then sends the message to Bob' s mail server over SMTP. Bob then transfers the message from his mail server to his host over POP3.*

**R18. Is it possible for an organization' s Web server and mail server to have exactly the same alias for a hostname (for example, foo.com)? What would be the type for the RR that contains the hostname of the mail server?**

*Solu: An organization' s Web server and mail server to have exactly the same alias for a hostname is possible.*

*The MX record is used to map the mail server' s host name to its IP address.*