

CS 725/825 & IT 725

Lecture 12

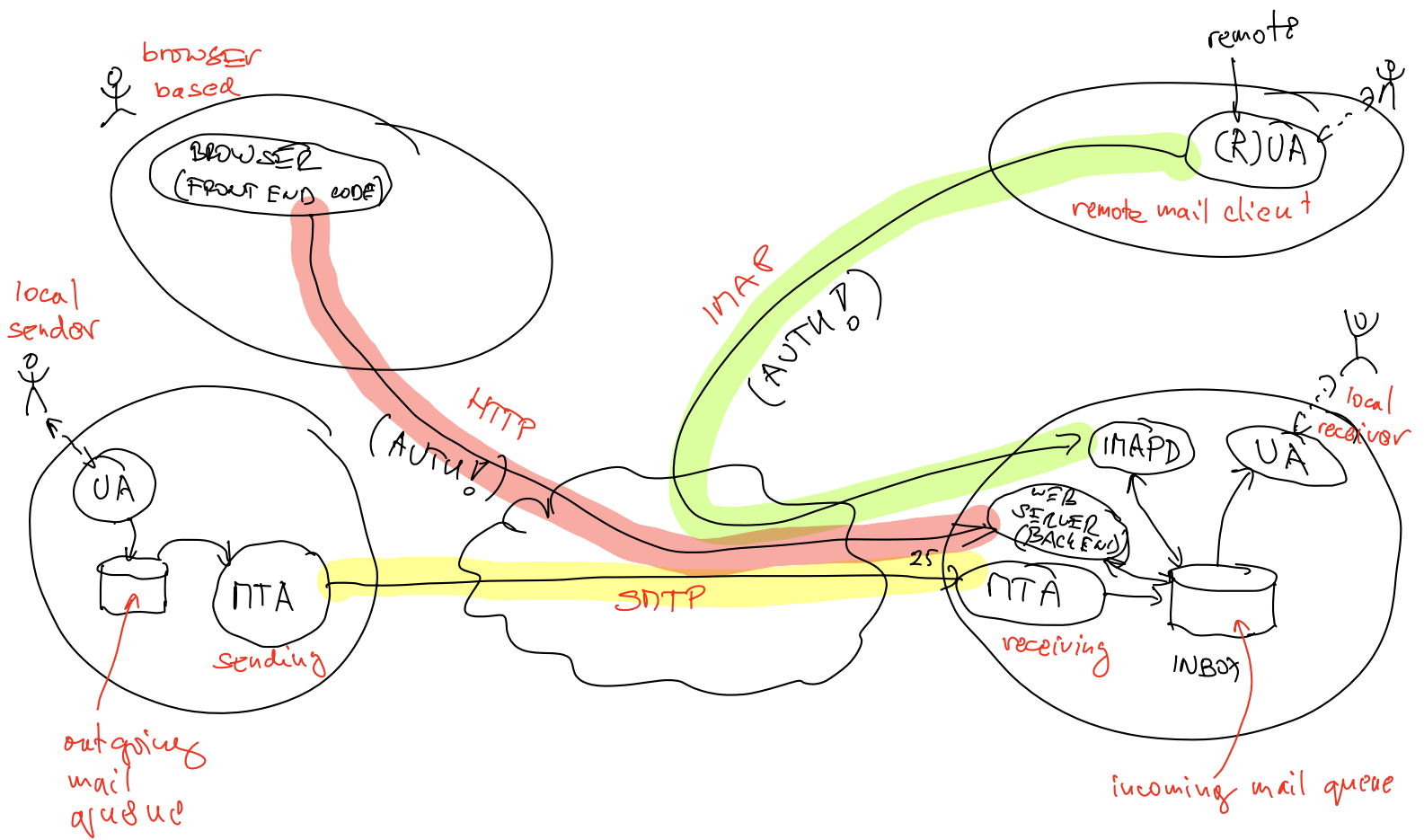
Application Layer Network Security

October 16, 2023

Electronic Mail - SMTP

- ▶ Asynchronous message delivery
 - delivers robustness and reliability
- ▶ Two types of agents:
 - User Agent (UA)
 - Message Transfer Agent (MTA)
- ▶ Two types of interactions (and protocols):
 - MTA to MTA
 - UA to MTA

PROTOCOLS FOR EMAIL DELIVERY



UA to MTA Communication

- ▶ UA and MTA on the same host (the old days)
 - UA and MTA communicate using files
 - use of host's authentication methods
- ▶ UA and MTA communicate over a network (today)
 - SMTP was not designed for this
 - sending mail: SMTP with authentication
 - retrieving mail: IMAP (includes authentication) or “remote authenticated access via HTTP” (webmail)

MTA to MTA communication

- ▶ Simple Mail Transfer Protocol (SMTP)
 - covers single hop
 - no encryption
 - no authentication
 - there was supposed to be a “not so simple” mail transfer protocol
 - some problems were addressed by ESMTP (extended SMTP) and other procedural methods

SMTP Server Actions

- ▶ SMTP server is deciding whether to accept an email message for delivery
 - **Local**: recognized user of the organization that runs the server:
 - by IP address
 - authenticated
 - **Global**: everyone else

To: From:	Local	Global
	Local	Global
Local	Deliver	Deliver
Global	Deliver (with caution)	Deny (unless authenticated)