

COMPSCI 111 / 111G

*Mastering Cyberspace:
An introduction to practical computing*

Electronic Communication
Email, instant messaging, forums



Arecibo Observatory, SETI project

What is e-mail?

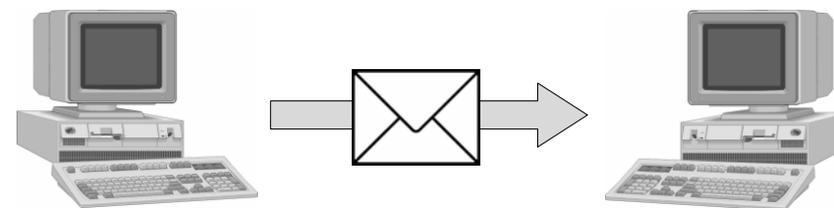
Electronic mail

- System for sending and receiving message over the Internet

Asynchronous system

- Messages are sent and received some time later
- Just like physical letters, but faster
- Normally takes seconds

Must know the address of the recipient



Electronic mail (e-mail)

Started very early (late 1960's)

- Before the Internet
- Multiple people shared the same machine
- People left messages for other users



<http://en.wikipedia.org/wiki/Email>

First network email

Ray Tomlinson

- Send first email message from one computer to another over network (1971)
- Used the @ sign for email addresses



<http://openmap.bbn.com/~tomlinso/ray/firstemailframe.html>

Email Address

Understanding the address

localpart@domainname

The local part of the address
Often a username

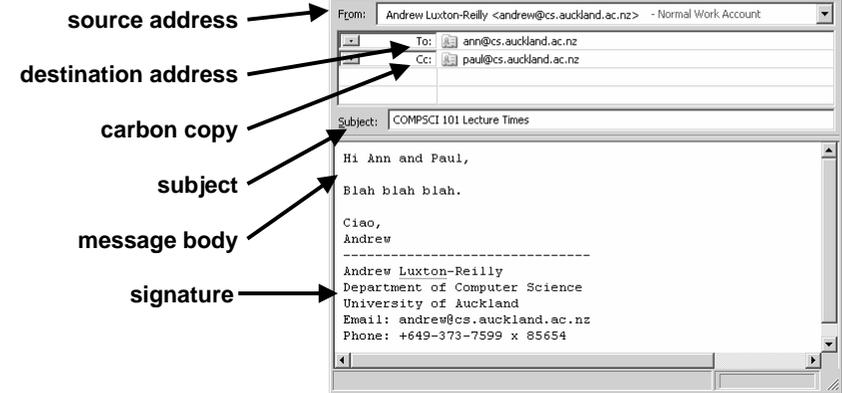
The domain name where the mail
server is located

e.g. lutteroth@cs.auckland.ac.nz

Sending an email message (1)

Compose the message

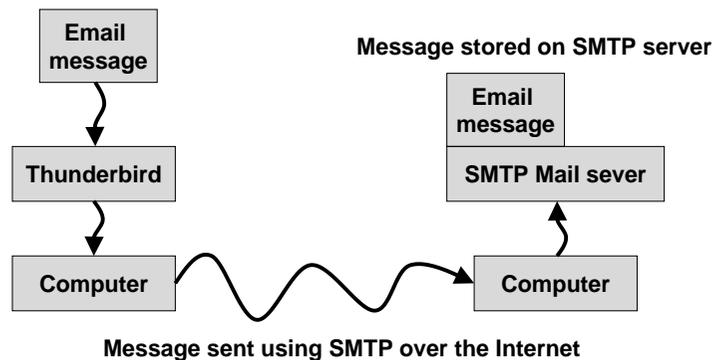
- Use an application
- Thunderbird



Sending an email message (2)

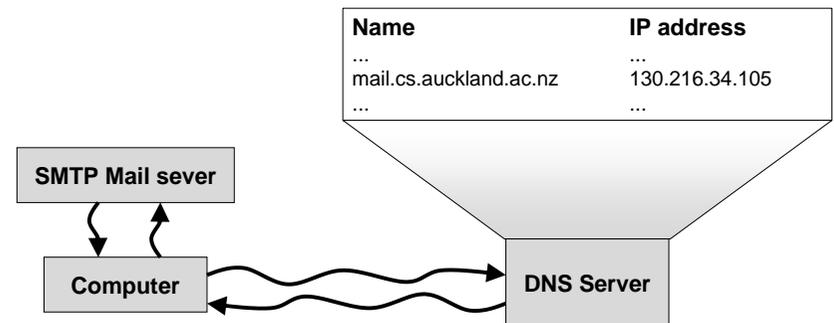
Program sends the email message to mail server

- Uses Simple Mail Transfer Protocol (SMTP)
- Usually located at your ISP



Sending an email message (3)

SMTP server contacts the DNS to find address of mail server



Sending an email message (4)

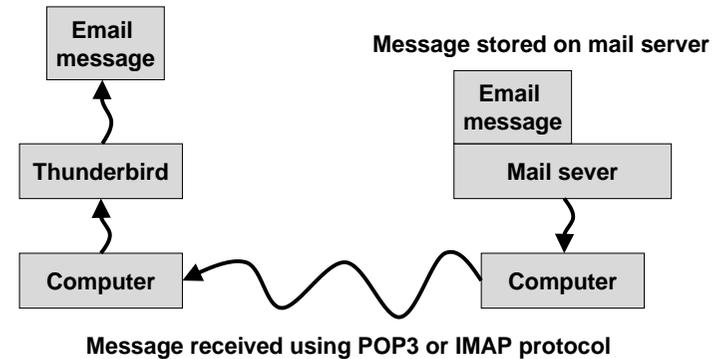
SMTP server sends the email message to destination mail server



Sending an email message (5)

User collects mail from mail server

- Different protocols for collecting mail
- POP3 (Post Office Protocol 3)
- IMAP (Internet Message Access Protocol)



POP3 vs IMAP

POP3

- Email is downloaded from server to local computer and deleted from the server after download
- No Internet connection necessary to read the downloaded messages
- If local computer is erased, the messages are lost

IMAP

- Email is kept on server
- Email client just shows what messages are on the server and downloads them on demand (not deleting them)
- Email can usually only be read when connected to the Internet (online)
- But: most email clients can be set to maintain a local copy that can be read offline
- Good to access email messages from different machines

Privacy and email

Messages pass through many machines

- Can be read by others while in transit

Messages are stored on the destination mail server

- Can be accessed by the administrator of the system
- Misdirected email automatically send to administrator
- Backup copies might be made automatically by the mail server

Legality

- Illegal to read physically posted mail (Federal crime in the USA)
- Perfectly legal to read email messages
- Many major companies in USA check employees email (25% - 75% depending on the survey)

Email and workplace

American Management Association

- 13% of companies faced lawsuits based on employee email
- 25% of companies fired employee due to misuse of email

Elron Software survey 1999

- 60% of employees send or receive "adult" email at work
- 55% sent racist, sexist or offensive personal email
- 10% received confidential information about another company

Chevron Corp.

- "25 reasons beer is better than women." cost them \$2.2 million US

Costs

- A company with 1,000 employees spends nearly \$4 million dollars a year on email - Tally Systems survey
- 20 - 30% of work email is personal in nature - Gartner Group

Spam and Scam

What is spam?

- Advertising emails, named after canned meat
- Unsolicited, bulk email (message send to thousands of people)
- Usually advertises a commercial product, a website, stock exchange shares, ...
- Spamming is illegal, but enforcement is difficult
- About 90 billion spam email messages per day (2007)
- Many email clients provide spam filters



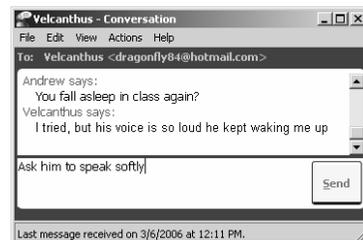
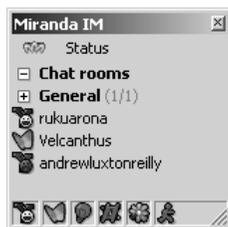
Scam via email?

- Emails promising money, free gadgets, prizes, ... DON'T BELIEVE IT
- Hoaxes: made-up stories, asking you to forward mails
- Can be verified by searching the internet (e.g. hoaxbusters.ciac.org)
- Phishing: acquire sensitive information (e.g. online banking password), by masquerading as a trustworthy entity (e.g. as your bank)

Instant messaging (IM)

Synchronous system of communication

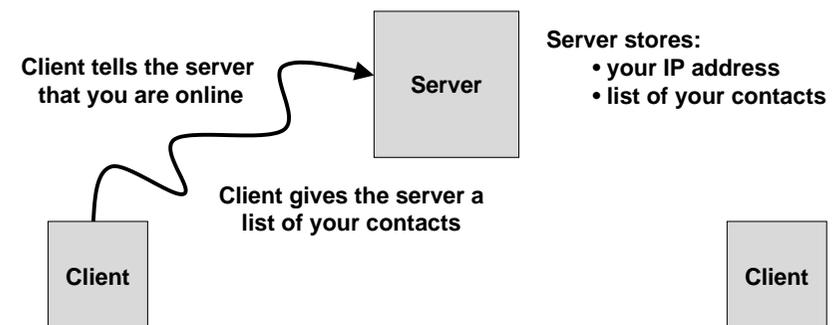
- List of contacts
- Displays contacts that are currently online
- Messages are sent immediately in real time



Chat system (1)

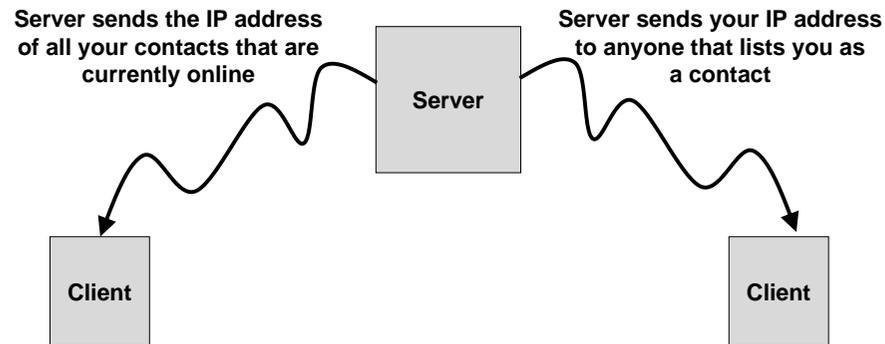
Start up the chat client

- Set the status to "online"



Chat system (2)

Server responds



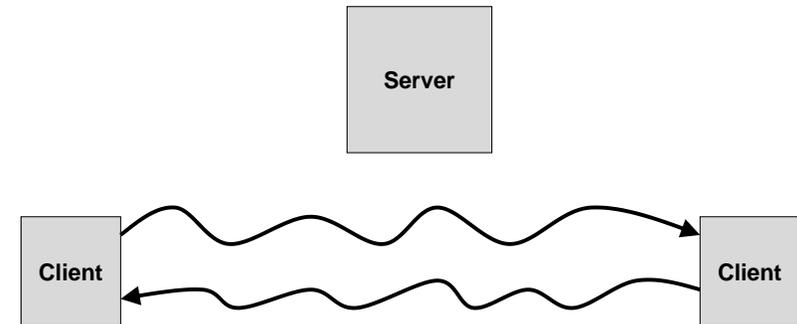
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Chat system (3)

Clients can chat to each other without the server



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Common chat systems

Chat Systems

- ICQ (November 1996)
- AIM
- IRC
- MSN
- Yahoo
- Jabber
- Google Chat

Applications used as clients

- Many
- Some clients allow user to connect to multiple chat systems
- Miranda

Chat rooms

- Anyone in the same "room" can see the same chat

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Dangers

Any electronic communication

- You cannot easily know who a person is
- People misrepresent themselves

*"The Internet:
where men are women,
women are men,
and 12 year olds are FBI agents."*



Who they say they are



Who they really are

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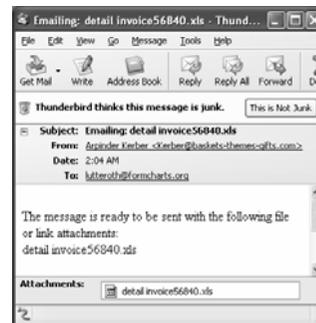
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Attachments

File that is attached to a message

- Sent via email or instant messenger
- Can be used to keep backups of important files on email system
- Not secure
- If possible, better send a link to the file than the file itself (much smaller, faster)



Attachments may contain dangerous files

- Spyware, malware, viruses
- Particularly dangerous: executable attachments (.exe, .com)
- Other seemingly harmless file types may also contain executable code
- **Never open an attachment you cannot trust!!!**

Forums

Message board

- Asynchronous communication
- Discussion group
- Online communities

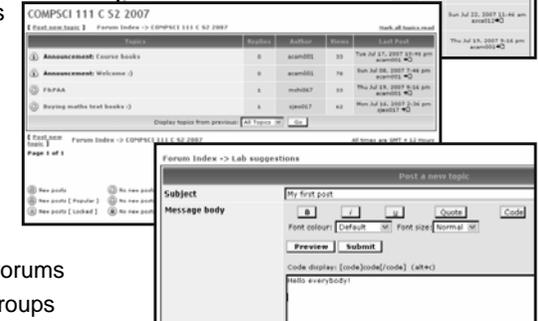


Moderator

- Administrator with ability to edit, delete, move messages

Thread

- An online conversation
- Message with replies (topic)



USENET

- Huge system of public forums
- Over 50,000 different groups

“Good manners” on the Internet

Netiquette (Ettiquette on the Net)

- How to behave politely
- How to avoid pitfalls
- Understanding cultural norms, understanding online communities

Required Reading

- <http://www.netmanners.com/courtesy1.html>
- <http://www.albion.com/netiquette/>

Optional Reading

- <http://www.emailreplies.com/>
- <http://www.faqs.org/rfcs/rfc1855.html>

Summary

Email can be used to send messages to email addresses

- Asynchronous communication
- Usually not secure, i.e. can be read by other people
- Used for spam and scam
- Used to send files as attachments
- Used to distribute spyware, malware, viruses

Instant messaging

- Synchronous communication
- Usually also not very secure
- Used to see if friends are online
- Used to chat with other people
- Chat rooms allow to chat with many people at the same time

Forums

- “Electronic discussion group”, usually moderated