Electronic Communication

Lecture 5 - COMPSCI111/111G

“...and you spent 5.73 years of your life deleting spam from your e-mail.”
Today’s lecture

- Looking at how different types of electronic communication work
  - Email
  - Instant messaging
- Issues with electronic communication
Email

- Electronic Mail; a system for sending and receiving messages over the Internet
- An asynchronous means of communication
- Necessary to know the address of the recipient in order to send an email message
Email - addresses

first.last@auckland.ac.nz

Local part of the address, often a username

Domain name of the email server
Email - composing

Sender

Recipient

Carbon Copy (CC)

Blind carbon copy (BCC)

Subject

Headers

Message body

Hi Ann,

Whereabouts is your office?

Cheers,
Reuel

-----Original Message-----
From: Ann Cameron
Sent: Sunday, 2 October 2016 6:55 p.m.
To: Reuel Baptista <reuel.baptista@auckland.ac.nz>
Subject: Re: Meeting tomorrow

Hi Reuel,

Okay. See you at 2pm in my office then.

Cheers,
Ann.
Email - protocols

- **SMTP - Simple Mail Transfer Protocol:**
  - Used to send emails from an email client via the email server

Diagram:
- Sender’s mail server
- Server uses DNS to find recipient mail server’s IP address
  - auckland.ac.nz ⇔ 130.216.159.127
- Recipient’s mail server

POP3 or IMAP
Email - protocols

- Protocol: a standard for communicating

- These email protocols are used by email clients (eg. Outlook, Apple Mail) to send and receive email
  - Webmail services such as Gmail and Hotmail use the same protocols

- POP3 - Post Office Protocol v3:
  - Emails downloaded from the server to the email client. Emails are then deleted from the server
  - No Internet connection needed to read downloaded messages

- Disadvantages:
  - If messages are deleted in the email client, then they are lost forever
  - Difficult to access your email from different devices
Email - protocols

- IMAP - Internet Message Access Protocol:
  - Downloads a copy of emails to the email client and keeps emails on the server
  - Emails can only be read when online, although most email clients can store a copy for offline access
  - Provides other helpful features such as folders
  - Designed to allow users to access their emails from multiple devices
Email - privacy

- Email is not a very secure means of communication
  - Can be read in transit
  - Can be read by the mail server administrator or stolen from the mail server

- Email in employment
  - Generally, employers reserve the right to read your emails on the company’s email system

- Making email more secure
  - Email encryption tools such as PGP
    - Some email clients have encryption functionality
  - Keep your account details secure and use 2FA
Email - spam

- Unsolicited, bulk email containing promises of money, fame, free prizes etc.
  - Name comes from the Monty Python *Spam* sketch

- A major problem; in 2010, approx. 80% of emails were spam

- Some spam emails contain attachments or links that can infect a computer with malware

- Most email providers have spam filters that divert spam emails to the Junk folder
Instant messaging

- Instant Messaging (IM) is a way of immediately sending messages over the Internet
- A synchronous means of communication
- In 2015, there were around 3.2 billion IM accounts. Whatsapp and FB Messenger were the most popular IM apps
- Some IM apps offer end-to-end encryption for conversations (eg. Telegram, FB Messenger)
Instant messaging

- Sender’s IM client connects to the server

Client tells the server that you are online, gives server list of contacts

Server stores:
your IP address, list of your contacts
Instant messaging

- Server helps clients to exchange IP addresses

- Server sends IP addresses of all your contacts that are currently online
- Server sends your IP address to anyone that lists you as a contact
Instant messaging

- Once connected, sender and recipient can chat without needing the server
Questions

- What protocol should I choose on my email client if I want organize my emails into folders?
- What is the domain name in this email address?

  customer.help@pizza.co.nz
Answers

- What protocol should I choose on my email client if I want organize my emails into folders?
  - IMAP

- What is the difference between synchronous and asynchronous communications?
  - Synchronous communications (video conferencing, IM) means the recipient receives the message immediately but asynchronous (Email, online forums) means the recipient gets the message after some time
What is the domain name in this email address?

customer.help@pizza.co.nz