50005 - Networks and Communications - Lecture 1

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Lecture Recording

Lecture recording is available here

Introduction

Module Timetable

Week	Topic
1	Introduction
2	Basic Concepts
3	Application Layer
4	Transport Layer
5	Security
6	Network Layer
7	Practical Applications
8	Data Link Layer
9	Physical Layer & Coding & Network Simulation
10	The Future & Revision

Coursework runs from Monday 7/2 → Friday 25/2.

Exam occurs in the summer term, covering principals, design tradeoffs (not a low-level/technical style).

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Lectures

- All lectures are pre-recorded and released a week before the Monday Q&A session.
- Monday Q&A session is recorded and run on teams.

How to not fail the module

- Attend Q&A sessions.
- Complete the weekly worksheets.
- Read up on the links in the slides.
- Complete the coursework.
- Ask and help to answer questions on EdStem.
- Revise during term.

Bibliography

Books to aide with the course, you are not expected to read them completely however you may find them useful to address topics from the slides.

- **"Computer Networks" by Andres S. Tanenbaum** 5th or 4th edition suffice.

- **"Computer Networking: A Top-Down Approach" James Kurose and Keith Ross** 7th or 6th edition suffice, E=Book available on Imperial College Library Website.

What is Computer Networking

Definition: Computer Networking

The process of interconnecting computer systems via telecommunications methods to share data and resources.

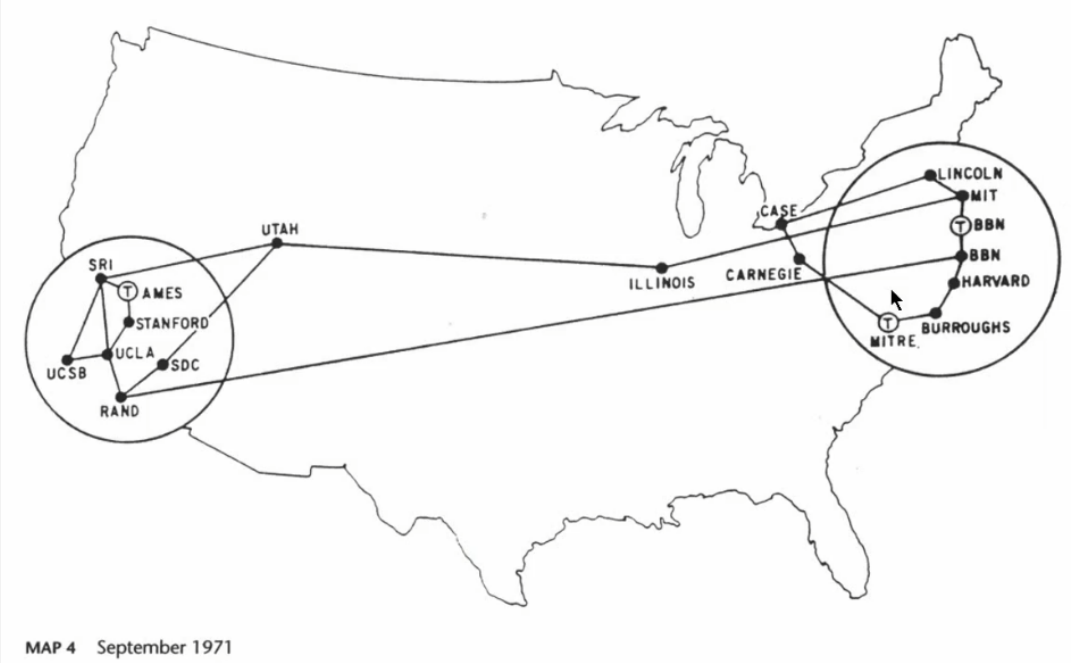
- Networks are becoming eprvasive (everywhere, always on).
- Most mainstream softwarew systems are distributed (cloud computing).
- Peformance often depends on network usage (can be a bottleneck or on critical path)

First Internet Connection

Arpanet (first part of the internet) was created on september 1st 1969 with a single node.

First message as "login", after "lo" was transmitted it crashed, but sent the resul after rebooting an hour later.

Greatly expanded afterwords, connecting several universities.



Vocations

- **Network Engineer/Architect** Design, build and maintain networks.

- **Server Application Developer** Server Backend and communication for cloud applications.
- **Network Software Engineer** Networks + Software Engineering
- **Data Center / Cloud Platform Admin** Networks + Cloud Computing
- **Network Secuity Engineer** Networks + Computer Security