CMPT 771 - G100 Internet Architecture and Protocols

Instructor(s): Jiangchuan Liu

Calendar Objective/Description:
Investigates the design and operation of the global network of networks: the Internet. This course studies the structure of the Internet and the TCP/IP protocol suite that enables it to scale to millions of hosts. The focus is on design principles, performance modelling, and services offered by the Internet.

Instructor’s Objectives:
In this course, we study the global network of networks: the Internet. We study the structure of the Internet as well as the TCP/IP protocol suite that enables it to scale to millions of hosts across the globe. We explore the services and capabilities offered by the current Internet as well as its inherent limitations. We will also examine the new generation of Internet-powered applications/services, e.g., cloud computing, social networking, sensor networking, green computing, 3G/4G/5G wireless mobile networking and beyond.

Prerequisites:
None

Topics:
- Review of Networking Basics
- Multimedia Networking
- QoS Support: Scheduling, Queing, Architectures, Protocols
- Wireless Networks
- Overlays and Peer to Peer Computing, Content Distribution Networks
- TCP Performance Modelling, Efficient Implementation of High-speed TCP/IP stack
- Recent advances in networking (data center, cloud, social networking, advanced wireless etc.)

Grading:
Course participation 25%, Midterm 30%, Paper presentation/Summary Project 45%

Reference Books:

Academic Honesty Statement:
Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student
Conduct Policies (http://www.sfu.ca/policies/gazette/student.html).