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COMPUTER NETWORKS

Uses of Computer Networks



- **Business Application**

- Resource sharing
- High reliability
- Saving money
- Powerful communication medium

- **Home Applications**

- Access to remote resources
- Person-to-person communication
- Interactive entertainment
- Electronic commerce

Uses of Computer Networks



- **Mobile Users**
 - PDA
 - Notebook
 - WAP
 - m-commerce (mobile commerce)
- **Social Issues**
 - Newsgroups
 - Bulletin boards

Uses of Computer Networks



Distributed Processing

- A task is divided among multiple computers with various advantages:
 - Security/encapsulation
 - Distributed databases
 - Faster problem solving
 - Security through redundancy
 - Collaboration processing

Objectives



- We will learn
 - Layer-architecture of Computer Networks (OSI) models
 - ✦ Communication protocols in different layers
 - ✦ Mapping to TCP/IP protocol suite at the appropriate parts
 - ✦ Linux networking is used for the labs/demonstrations
 - Major is on both networking knowledge and practical experience
- This course is appropriate for
 - Technically oriented people with little or no networking experience

Contents: week-by-week topics



- Course Program consists of:
- **11 LECTURES:**
- Week 1: Introduction [chapter 01]
- Week 2: Network Layer [chapter 04, addressing/subnet]
- Week 3: Exercises on IP addressing/subneting
- Week 4: Network Layer [chapter 04, IP routing algorithms, IP routing protocols, Internet network protocols]
- Week 5: Exercises on IP routing algorithms and protocols
- ***Week 6: Mid-Term***
- Week 7: Transport Layer [chapter 03, RDT protocols]
- Week 8: Transport Layer [chapter 03, TCP pure operations, TCP congestion control]
- Week 9: Exercises on TCP
- Week 10: Application Layer [chapter 02]
- Week 11: MAC Layer [chapter 05, multiple access protocols, Ethernet: CSMA/CD, ARP]
- ***Final-Exam***

References



- Lecture Notes
- Text Books
 - Jim Kurose and Keith Ross, “**Computer Networking: A Top Down Approach Featuring the Internet,**” 3rd edition, 2004, Addison-Wesley.
- Reference Books
 - *Computer Networks*, 4th Edition, Andrew S. Tenenbaum, Prentice Hall, 2003
 - *Data Communications and Networking*, 2nd Edition, Behrouz A. Forouzan, Mc Graw Hill, 2000

Grading policy

- Following UIT policy, update later!
 - Labs: 30% {Thực hành}
 - Mid-term: 20% {Quá trình/Giữa kỳ}
 - Final Exam: 50% {Cuối kỳ}

Communication



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