Computer Networks II

Clé Moodle : BGP4

Ch.1 Introduction

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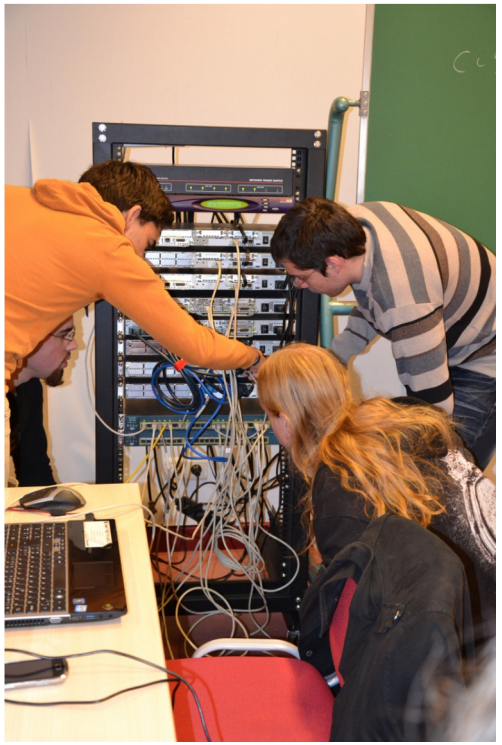
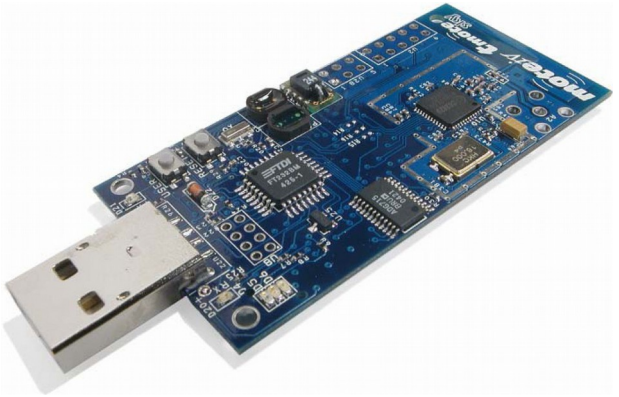
Course Organization

- Formal lessons
  - Quick review of networking basics
  - Advanced topics
    - Interdomain routing and BGP : protocol details, scalability, convergence
    - IPv6 : addresses, auto-config, transition
    - Wireless LANs
    - Wireless Sensor Networks (WSNs) : networked embedded systems programming, specialized protocols, Internet of Objects (IoT)
    - Multi Protocol Label Switching (MPLS)
    - Traffic Engineering (CSPF, OSPF/ISIS-TE)
    - Resource ReSerVation Protocol (RSVP, RSVP-TE)

Course Organization



- Labs
  - TA : Mathieu Michel
  - Possible topics
    - Real lab experiments (Cisco gear)
    - Network simulation (cbgp, ns-3)
    - Networked embedded systems and wireless sensor networks
    - Network emulation (Click, NetKit)
    - IPv6 configuration and sockets
    - … (to be defined)
    - should start on September 21th
      - BRING YOUR LAPTOP !



Course Organization

- Talks... by YOU !
  - Individual work
  - Read, understand, presend a scientific paper / book excerpt
  - Preparation for MA1 project defense
  - Talks to be given in end-october / early-november
    - possibly public (CS dept. member invited) ?
  - *Meta* paper : "How to read a paper ?"

Course Organization

- Talks... by YOU !
  - Diverse topics, related to relatively "hot" issues in networking
  - Mainly from
    - ACM SIGCOMM Conference
    - ACM SIGCOMM Internet Measurement Conference (IMC)
  - List will be available soon on Moodle

References

- **Computer Networks: A Systems Approach**, 4th edition, L. Petterson and B. Davie, Morgan-Kaufmann, 2007
- **Network Algorithmics**, G. Varghese, Morgan-Kaufmann, 2005
- **Computer Networking: A Top-Down Approach Featuring the Internet**, 5th edition, J. Kurose and K. Ross, Addison-wesley, 2009
- **Internet Routing Architectures**, 2nd Edition, S. Halabi, CISCO Press, 2001
- **High Performance Switches and Routers**, H. J. Chao and B. Liu, Wiley-Interscience, 2007
- **IPv6 Essentials**, 2nd Edition, S. Hagen, O'Reilly, 2006
- **MPLS-Enabled Applications: Emerging Developments and New Technologies**, 2nd Edition, I. Minei and J. Lucek, Wiley, 2008
- **Wireless Sensor Networks: A Networking Perspective**, J. Zhieng and A. Jamalipour, Wiley, 2009
- **Protocols and Architectures for Wireless Sensor Networks**, H. Karl and A. Willig, Wiley, 2005
- **TCP/IP Illustrated, Volume 1: The Protocols**, W. R. Stevens, Addison-Wesley, 1994

Evaluation

- Evaluation
  - Oral exam : 70%
  - Talk : 30%

- Warning !
  - The talk can only presented **once** (for obvious organization reasons)
  - There is no grading for the labs !... unless there is abuse. We hope your are serious students, willing to learn...

Chapter 1: roadmap

1.1 Review of networking basics

Review of Networking Basics