Introduction to LMAND / PRLC

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Lecturers

- In-class lectures
  - Fulvio Risso (fulvio.risso[at]polito.it)
- Cabling
  - Piero Nicoletti
- Labs and exercises
  - Guido Marchetto (guido.marchetto[at]polito.it)

Please contact the proper person when you have questions
Course mission

The course aims at presenting the most important technologies related to Local and Metropolitan Area Networks, and give some information about how to engineer these infrastructures.

Additional topics include Cabling and Data Centers.
Course Outline

- LANs and Ethernet basics
- High Speed Ethernet
- Bridging and Spanning Tree
- Switching
- Design of Switched Networks
- Advanced Topics (Rapid Spanning Tree, Qos, ...)
- VLAN
- L3 Switching
- Design of Campus Networks
- Data Centers
- L7 switching
- Cabling
Prerequisites

- IP and the most important protocols of the TCP/IP suite
  - ARP, IP, DNS, TCP, UDP
- IP Network design
  - IP addressing, subnetting
- Packets generated on the network in the most common conditions
  - E.g. ping www.mydomain.com
  - Open a web page
  - Interaction with the DNS
  - With and without hot ARP/DNS caches
In-class exercises

- Facilitate the learning process
- Only a few (in class)
  - An extensive set of exercises and closed-answer question will be posted on the course web site
Homework

- Why to do the homework
  - During 2009, the percentage of students who passed the exam ramped from about 50% to 91% (PRLC) and 71% (LMAND)
  - In any case, up to 3 points bonus at the first exam for who submitted 5 out of 6 homework

- Homework
  - Weekly deadlines (please check the calendar)
  - Solutions published the week after
  - Please ask the professors for help if you cannot understand your assignment
  - Submission: by HAND to one of the professors (during teaching or lab hours)
    - Handwritten text is perfectly fine
  - Not evaluated in any case by the professors
Practical Lab

- Lab is a unique opportunity
  - Real devices, not just toys

- Objectives
  - Play with real devices, not just toys
  - Touch what we teach in classroom
  - Facilitate the learning process

- However...
  - Lab is not always easy and it may require a considerable amount of work
  - Optional and... without any “bonus”

- Strict deadlines
  - Necessity to reconfigure the lab for different assignments

- Details: presented by Guido Marchetto later
Schedule

- 8 hour/week in class
  - Some spare hours at the end of the course

- Variable number of hours in lab
  - Please check the calendar week after week

- Lab Hours = Consultancy Hours
  - Please use those hours for clarify the subject, exercises, homework, etc
  - Those hours are shared among PRLC and LMAND
    - Maximum of 12 hours/week
Exam rules

- Written exams
  - 18 multiple-choice questions
    - 1 point: in case of correct answer
    - 0 points: in case of missing answer
    - -0.5 points: in case of wrong answer
  - 3 exercises
    - 4 points each
- Pass if (exam >= 18)

- Only for the first exam
  - Students who submitted at least 5 homework can have up to 3 points summed to the exam grade (if successful)
Exam schedule

- Two exams in summer
  - End June
  - Mid-July
- One exam in September
- Additional exams in November, January, April
  - Only for “laureandi”
- Outcomes of the past exams
Exam replacements

- No assignments available *in addition* to the exam

- A few assignments are available that *replace* the exam
  - An in-depth analysis of some selected topics (e.g., Application-layer processing, Storage Area Network Protocols, etc)
  - Lab exercises
    - Captures, case studies
  - Theoretical exercises

- The student must have *average marks* > 27
Students who were enrolled in the past

- The outline of the course is almost unchanged
- Lab grades are still valid
- You can keep the rules valid in your year
  - In terms of necessity to complete the assignments, grade of exercises / assignments
Text book

- PRLC
  - Baldi, Nicoletti. Switched LANs (in Italian)
- LMAND
  - Seifert, Edwards. The All-New Switch Book: The Complete Guide to LAN Switching Technology (in English)

But...
- Both do not cover all the topics
- Slightly outdated (the former)
- Please take your own notes in class
Logistics (1)

- Course website
  - http://netgroup.polito.it/teaching/prlc/
  - http://netgroup.polito.it/teaching/lmand/
- Day-by-day calendar (Google-based)
- Online slides
  - Available (hopefully) before the class

! Warning!

! Slides are not enough!
Logistics (2)

- Class live recording (on http://didattica.polito.it/)
  - For who cannot attend to the class
- Auto-learning lectures
  - Available on the “Portale della didattica”
- Prof. hours for consultancy
  - Before/after the class
  - Face-to-face meetings
    - Check for rules on the professor’s website:
    - http://sites.google.com/site/fulviorisso/
Questions?