Fundamentos de Sistemas Distribuidos

Introduction

Máster universitario en Software y Sistemas
Universidad Politécnica de Madrid

Practical Info

- Time: **Tuesday from 17:00 to 19:00**
- Place: **Aula 6205 (bloque 6)**
- Web: http://lsd.ls.fi.upm.es/lsd/education
- Instructor: **Prof. Ricardo Jimenez-Peris**
  - rjimenez@fi.upm.es
- Lecturer: **Claudio Soriente**
  - csoriente@fi.upm.es

Syllabus

Distributed Systems	Network Security
1. Agreement protocols and group communication a) Synchrony models b) Agreement protocols c) Group Communication 2. Transactions a) CID Properties b) Isolation and concurrency control c) Atomicity, durability and recovery d) Distributed transactions 3. Database Replication a) 1-copy equivalence b) Protocol taxonomy c) Primary-copy vs. update-anywhere protocols d) Eager vs. lazy protocols e) Autonomic features 4. Cloud Computing a) Overview b) IaaS, PaaS and SaaS	1. Introduction to Computer Security a) Model and terminology b) Services and attacks 2. Conventional Cryptography a) Encryption, methods and preliminaries b) Modern standards c) Cryptographic Hash Function 3. Public Key Cryptography a) Math review b) Encryption Signatures c) Public Key Infrastructure and revocation d) Revocation e) Eager vs. lazy protocols 4. Network Security a) Attacks on TCP, TLS, IPSEC b) Web Anonymity: Proxies, Mixnets, TOR, Crowds, c) Wireless Sensor Networks Security d) RFID Security and Privacy

Bibliography

- Bibliography – Distributed Systems:
  - To be announced
- Bibliography – Network Security:
  - Network Security: Private Communication in a Public World, 2nd edition
    - Kaufman, Perlman, Speciner – ISBN: 0130460192
  - Cryptography : Theory and Practice, 3rd edition
    - Stinson – ISBN: 1584885084
  - Cryptography and Network Security, 4th edition
    - Stallings – ISBN: 0131873164

Evaluation

- In class presentation
  - List of research papers from mayor venues
    - VLDB, SIGMOD, ICDCS, SRDS, …
    - CCS, INFOCOM, WiSec, PerCom, …
  - Pick one you like (first come first serve)
  - Present it to the class (and be ready to answer questions!)

What's in a good talk

- Introduction and background
  - Get acquainted with the area!
- Motivation and goals
  - What is the reason behind the paper?
  - What do the authors want to achieve?
- Novelty
  - What do they propose?
- Comparison with related work
  - Do they do any better?
- What you think of the paper?
  - Question their work!

Tips

- Attend to classes
  - Ask questions!
- Read ALL papers
  - Use a critical approach
  - Get familiar with background / related work
- Browse mayor conferences websites
  - Look at talk slides

What you get home

- A glimpse of what is research in Computer Science
- An overview of a broad research area
- Familiarize with the structure of a paper
- Learn how to prepare a talk
- Give a talk to an educated audience

Some useful links

- Tips for Writing Technical Papers, by Prof. Jennifer Widom
  - http://infolab.stanford.edu/%7Ewidom/paper-writing.html
- Tips for a Good Conference Talk, by Prof. Jennifer Widom
  - http://infolab.stanford.edu/%7Ewidom/conference-talks.html
- Presentation tips for Computer Science Grad Students, by Matthew J. Miller
  - http://www.matthewjmiller.net/ramblings/presentation-tips/
- Writing Tips for Computer Science Grad Students, by Matthew J. Miller
  - http://www.matthewjmiller.net/ramblings/writing-tips/

Questions?

See you next Tuesday!