TDDD17

Information Security

Department of Computer and Information Science (IDA)

Division for Database and Information Techniques (ADIT)

Agenda

- Organization of the course
  - Topics
  - Prerequisites
  - Examination

Examiner
Nahid Shahmehri

Course leader
Ulf Kargén

TOPICS

Network security

- **Secure network design**
  - Partitioning
  - Security devices
  - Trust relationships
- **Network security protocols**
  - Network layer (IPSec)
  - Transport layer (TLS)

Andrei Gurtov

Professor @ IDA/LiU

Identification and authentication

- **Basic principles**
- **Biometric authentication**
  - Fundamental principles
  - Various types of biometrics
  - Threats and attacks
- **Tokens and statistics**
  - Types of tokens
  - Threats and attacks
  - Passwords

Amund Gudmundson Hunstad

Researcher at the Swedish Defence Research Agency

Privacy and database security

- **Database security**
  - Access controls, etc.
- **Database privacy**

Olaf Hartig

Assistant Professor @ IDA/LiU

System security

- **Introduction to system security**
  - Quick recap of basics
    - Hardware architecture
    - OS design
  - Security shortcomings in traditional OS and hardware architectures

Ulf Kargén

PhD student @ IDA/LiU

Doing research in software security

- **Trusted computing**
  - New challenges in security
  - Basic principles
  - Virtualization
  - Execution environments
  - Mobile devices

Ben Smeets

Professor @ Lund

Engineer @ Ericsson

Expert in trusted computing and mobile devices

System security

- **Operating system security**
  - Security mechanisms
  - Hardware support

Robert Malmgren

Independent consultant

Scada security expert

IDG top security expert

ORGANIZATION

Organization

- Course runs over whole semester and consists of two parts
  - First period: Lectures + labs + exam
  - Second period (mostly): Independent project work

- Written exam (3 credits), labs (1 credit) and project (2 credits)
  - Final grade depends on exam
  - Labs and project are pass/fail only.

Labs

- Two mandatory labs
  - Firewall configuration
    - Analyse network requirements and risks and configure a firewall
  - NIDS
    - Configure a Network Intrusion Detection System (NIDS) to detect attacks

- Only parts of lab sessions are supervised. Check course web page!
- Hard hand-in deadline **March 15**
  - Hand in before this time to allow time for grading and possible re-submission!

Project

- Work in groups of two (no exceptions)
- Choose from a list of topics (first-come-first-serve, sort of)
  - List of projects will be published **February 8**
  - See detailed instructions on web page
- Must meet intermediate milestones and deadlines
- Must produce written report and presentation

Prerequisites

- Basic security course is required
  - We will assume that you know some basic things

- Network Security – Basic knowledge of TCP/IP networks is recommended
- System Security – Basic understanding of operating system design and computer hardware is recommended.

Prerequisites

- Capable of independent study and research
  - Essential in the project phase…
  - …but also for when studying for the exam.
- Capable of producing a good quality project report

Other information

- Hand-outs will be available on the course homepage before lectures (usually the day before, ***but no guarantees***)

- Course literature on the course homepage
  - Hand-outs
  - Collection of articles and book chapters

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