INSTITUT NATIONAL DES SCIENCES APPLIQUÉES TOULOUSE

Architectures of secured networks

ECTS
4 crédits

Hourly volume
54h

Introducing

Description

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

- The main concepts associated to the design and the implementation of secure network architectures
- The main tools and technics allowing to implement protection measures, and their usage according to the different contexts and objectives
- The vulnerabilities inherent in system architectures and network and major intrusion techniques;
- The operation of the main vulnerabilities of the web.

The student will be able to:

- Identify the different classes of firewalls as well as their functionalities and weaknesses
- Define and audit a filtering architecture dedicated to a specific network
- Choose, for an IPSEC tunnel, the correct protocols, the correct execution modes and a routing plan adapted to the associated gatewaus
- Implement and audit such an IPSEC tunnel
- Deploy and audit a VPN based on IPSEC, either by configuring ¿by hand¿ the VPN or by using all-in-one preconfigured tools available
- Deploy and audit a network intrusion detection system (or intrusion prevention system)
- Design a complete security architecture for a complex network
- Identify the advantages and limitations of different intrusion detection solutions;
- Position the intrusion detection sensors efficiently;
- Analyze the events collected by the sensors and correlate these events to identify a real threat.
- Identify vulnerabilities in web architectures and propose solutions to achieve effective protection.

Necessary prerequisites

Good knowledge of web architectures, cryptography and networks.

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

Toulouse

Non-contractual information