Architectures of secured networks

ECTS
4 crédits

Hourly volume
54h

Introducing

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.

Practical info

Location(s)

Toulouse