USEEJ6 - Network Architecture

Mis à jour le 02-02-2024

Code : USEEJ6

Unité spécifique de type cours

6 crédits

Responsabilité nationale :
EPN03 - Electroniques, électrotechnique, automatique et mesure (EEAM) / Stefano SECCI

Contact national :

EPN05 - Informatique

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Présentation

Prérequis

basics of computer science

running commands at the Linux command

remote access via SSH

Objectifs pédagogiques

Acquire the fundamentals of the architecture of the Internet, with a focus on the higher layers of the TCP/IP architecture: the Application, Transport, and Network layers, touching lightly on the Data Link and Physical layers. Ability to understand what is taking place within a network by capturing and examining packet traces.

Compétences

- understanding of principles in network architectures and protocols
- understanding of the considerations that shape the design a corporate network

Programme

Contenu

- Overview of the Internet

- The layered model of network design (the OSI model and the TCP/IP model)
- TCP/IP architecture, what is meant by a networked protocol
- application layer : HTTP, DNS, SMTP, TELNET, FTP, etc.
- transport layer : UDP, reliable data transmission, TCP, congestion control
- network layer : IP, ICMP, addressing, routing
- data-link layer : addressing, switching

Modalités de validation

- Contrôle continu
- Examen final

Description des modalités de validation

Hands-on labs are organized to provide a deep undestanding of the course material, but are not graded. Grading is entirely based upon a midterm exam and a final exam.

Bibliographie

Titre	Auteur(s)
Computer Networking: Principles, Protocols and Practice,	Olivier Bonaventure
Computer Networking: A Top-Down Approach	Jim Kurose and Keith Ross