



**Project Title:**

# LAN-Emulator with VoIP Support

**Project Objectives:**

Design and implementation of Local Area Network (LAN) emulator with Voice over IP (VoIP) service support. This network emulator can be used to emulate a wide variety of network characteristics and conditions inside a laboratory environment. Protocols and applications can be tested, without modification, directly on top of the emulated network. The proposed emulator can be used to demonstrate the following function:

- LAN Switching
- WLAN Access Point
- WAN Routing
- Voice over IP Service
- Web Service
- E-mail Service
- File Transfer Service
- Other Network Applications Services (DHCP, DNS, ...)
- Sniffing with Network Traffic Capturing and Monitoring Tools
- Network Scanning and Analysis
- Network-based Firewall

The proposed system can be used to illustrate different network protocols (e.g., IPv4, IPv6, ARP, ICMP, TCP, UDP, HTTP, FTP, SMTP, DNS, DHCP, ...)

Servers emulated include (not limited to) SIP server, web server, ftp server, e-mail server, telnet/ssh server,...

Moreover network simulation tools can be used (OPNET and/or Matlab, ...). The operating system used is Linux-based. Java or any other language can help.

**Number of Students:**

4 students.

**Supervisor**

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