



UNIVERSITÀ DI PISA

NETWORKS AND TECHNOLOGIES FOR TELECOMMUNICATIONS

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Anno accademico	2018/19
CdS	INFORMATICA E NETWORKING
Codice	158II
CFU	9

Moduli	Settore/i	Tipo	Ore	Docente/i
RETI E TECNOLOGIE PER LE TELECOMUNICAZIONI	ING-INF/03	LEZIONI	72	ALESSIO GIORGETTI BARBARA MARTINI LUCA VALCARENGHI

Programma (contenuti dell'insegnamento)

Network Management and Services (30 hours) – B. Martini

- What is Network Management and how it works in IP and transport networks
- Management protocols (i.e., SNMP, NETCONF, CMIP)
- Data modeling and data syntax languages (i.e., SMI, GDMO)

Lab of Network Software (25 hours) – A. Giorgetti

- Introduction to software defined networking (SDN): what is an SDN network? which are the main benefits of SDN with respect to traditional layer2-layer3 networks?
- Introduction to the OpenFlow protocol: switch specification and protocol specification.
- Setup of a set of software tools to emulate an SDN network and experiment on it (OpenVSwitch, Mininet, ONOS, Intellij).
- Introduction to an open-source SDN controller: ONOS.
- Architecture of ONOS and its main interfaces.
- Development of simple network applications in ONOS.

FPGAs for Communications Networks Prototyping (20 hours) - L. Valcarenghi

- What is an FPGA and what can be used for in communications networks
- FPGA design flows: schematic-based design flow, HDL-based design flow, modular and incremental design
- Design Tools: simulation, synthesis, verification

Modalità d'esame

Project/Final test

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