Arquitecturas de Redes

MSC.Engenharia de Computadores e Telemática
4º ano, 1º semestre, 2021/2022

Rui L Aguiar, UA/IT

Netork Architectures

- Professors
  - Rui L Aguiar (ruilaa@ua.pt) – DETI (UA)/IT
    - Theoretical classes (regente)
    - Practical Classes

STAY SAFE

KEEP PRECAUTIONS

2

Planning

- 13 weeks scheduled for theoretical and practical classes
  - Information in elearning…
    - First time this runs…
    - … But heavily inspired by previous ARA.
      - Some info will be trasferred from there FYI.
      - Take that as "guideline", not "material"
  - English language in slides

3

Objectives

- to provide an integrated vision of communication networks, including aspects associated with user, service, and network requirements.
  - Management, multimedia communications, and virtualization and service distribution.
  - Focus on architectures and "the converged operator"
  - Students should be able to:
    - the evolution of telecommunication systems;
    - service support in an operator environments, with aspects as management, transport protocols and signalling.
    - the current network architectures and the virtualization trends.

4

Program

- Groups of classes as theoretical and practical
  - Need to understand the class to close the practical works
  - Some classes will be mixed
  - Is it possible to change times for the classes?
    - Possible to use another room, to facilitate theoretical classes
    - Warnings on elearning
    - Some dates are a problema for me

5

Program

1	15-Oct	Introduction
2	22-Oct	The communications ecosystem, and its evolution. Operator networks and associated architectures.
3	29-Oct	The backbone network, MPLS and DWDM. Peering and BGP Routing
4	05-Nov	BGP/MPLS Work
5	12-Nov	QoS support. IP-based QoS models: IntServ models, Diffserv, and their network mapping
6	19-Nov	Architectures for multimedia communication. The VoiP model. Multimedia technologies: SIP, H323, WebRTC
7	26-Nov	VoIP Work
8	03-Dec	Cellular networks and the raise of FMB convergence: the 4Play model. Content optimization: CDNs
9	10-Dec	CDN Work. Final work: project discussion.
10	17-Dec	Network virtualization: SDN, NVF, edge and fog computing. (Minitest practical)
11	07-Jan	Network Management Concepts: TMN Final work: project discussion
12	14-Jan	Demo preparation
13	21-Jan	Demo and evaluation

6

Evaluation criteria

- Theory: 50%
  - Single test.
  - Final exame (a.k.a. exame de recurso) will contain all subjects as well

- Practical: 50%
  - First batch of work: mini-test, 15%
  - Project Work: 30%, including "presentation" and "reporting (5%).

7

Organization

- All information to be displyed in e-learning
  - Announcements
  - Classes handoout
  - Practical works
  - Evaluation and grades
- Summaries in paco.

8