

Cloud Computing

MUCPD – DSIC – UPV



Contact

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Tutorías bajo demanda

Course Objectives

- **Understand fundamental concepts of cloud computing**
- **Explore cloud deployment and service models**
- **Develop practical skills designing & deploying services**
- **Develop awareness of cloud challenges**
E.g., Security, resource optimization, application development

Grading

Lab Project (60%)

Service deployable on Axebow
multi-cloud Platform

Write up on project (40%)

Paper describing your
implementation of the Lab project

Deadline

January 17, 2025

Calendar & Classes

2 credits Theory

2 credits Labs

4 hour sessions

In-classroom

All Wednesdays

Last class: November 6

Mixed theory/Labs:
Bring your laptop for labs

On-line

Fridays:

- Sept 27
- Oct 18

Theory Syllabus

Topics

01

Introduction

What is cloud computing

02

Virtualization

Main enabling technology

03

Service Models

Types of services

04

Deployment Models

Types of clouds

Topics

05

Key providers & services

Main hyper-scalars and their core services

06

Security

Fundamentals

07

Networking & Storage

Service communication and persistent state handling

08

Resource Management

Optimizing usage. SLA, scaling and elasticity

Topics

09

Advanced concepts

Serverless, containers, ...

10

Orchestrators

Container management solutions

S-1

The Kumori Service Model

Specifying multi-cloud services

S-2

Using The Axebow Platform

Deploying Kumori Services

Labs

Design, Implement, Deploy

What

- Simple illustrative service
- Integrate some software pieces
 - Queues
 - Inverse proxy
 - Authenticator
- Develop

How

- Groups of 3
- Develop in Typescript or Golang
- Specify for Kumori platform
- Deploy on Axebow service
- Use git
 - Hand in complete repo in tgz format
 - Repo contains paper too
 - In pdf

Technologies

Typescript/Golang

Implementation

Git

Project development

Docker

Packaging for deployment

VSCode

Editing

Nice to know about

Distributed Systems

Scalability

Messaging queues

Rest interfaces



QUIZ

Quienes

Informática

- Otros
- ...

Typescript

- Nivel

Git

- Requerido para Desarrollo y entrega

Trabajo

- Full time?

Golang

- Nivel

Linux

- Aconsejable para desarrollo