

Course Guidelines

Gestão de Infraestruturas de Computação

deti universidade de aveiro
departamento de eletrónica,
telecomunicações e informática

João Paulo Barraca

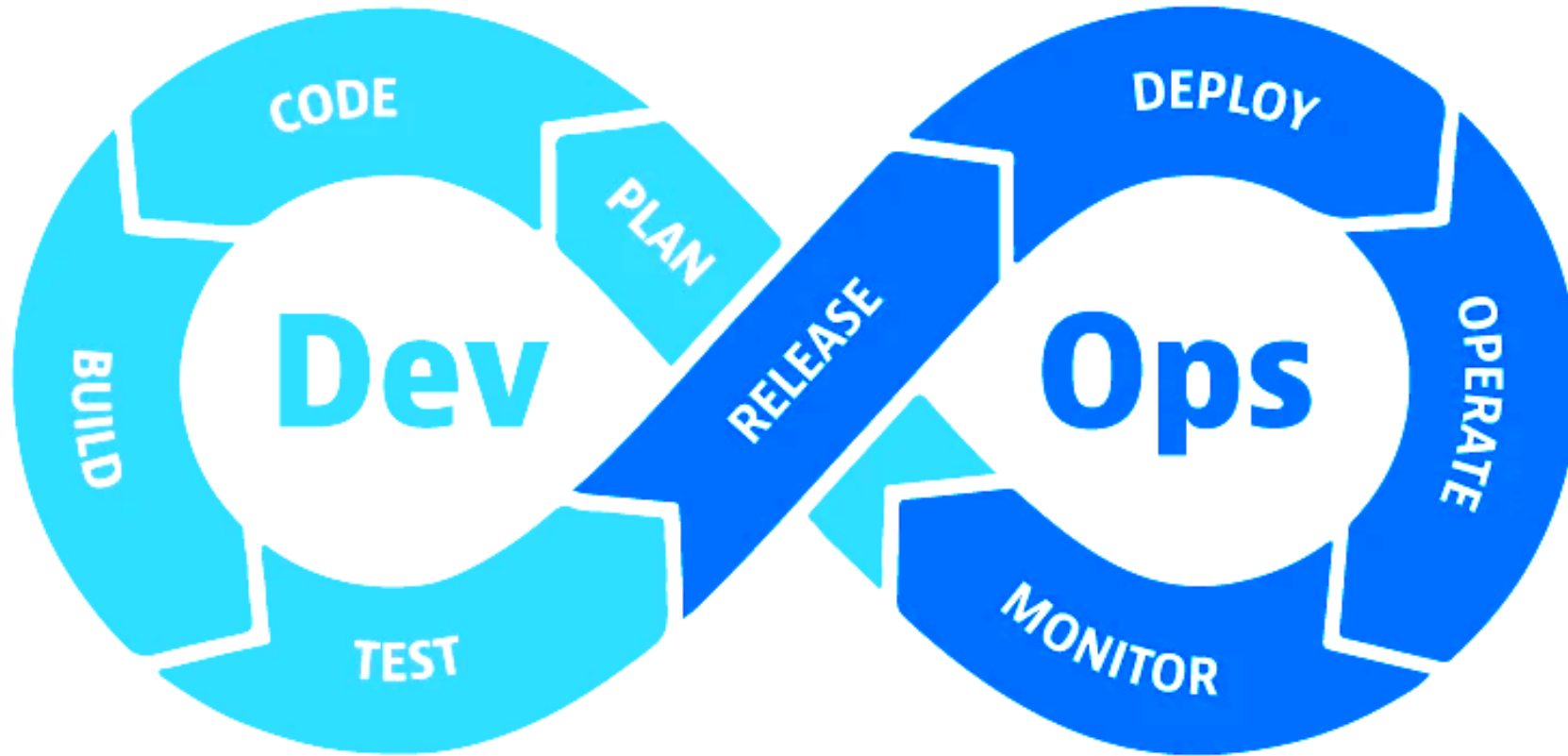
Faculty and Tools

- João Paulo Barraca
 - jpbarraca@ua.pt
 - Office 213, IT
- Chat using Discord: <https://discord.gg/mbgfNhnsM3>
 - Used for discussion during classes and support
 - Join and set your real name
- Elearning: <https://elearning.ua.pt/course/view.php?id=6920>
 - Used for announcements and content

Objective

- Explore concepts related with the deployment and operation of cloud services
 - Planning of resources and architecture
 - Deployment
 - Management
 - Monitoring
- Focus on infrastructure as code and cloud native approaches

DevOps



Topics Explored

- Management of Information Systems
- Virtualization Technologies
- Policy Management
- Configuration Management
- Service Redundancy
- Load Balancing and Caching
- Monitoring

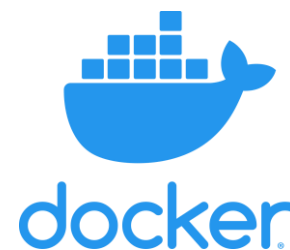
Technologies Explored



HAPROXY



elasticsearch



Grading

- Final grade = Exam * 30% + Practice * 70%
- Practice:
 - Assignment 1: Presentation - 5% - start of March
 - Assignment 2: Report - 25% - end of April
 - Assignment 3: Report - 40% - end of May

Assignment: Presentation – 1pt

The Product

- Present the product you wish to operate
 - Must have a frontpage for your company/product (static page)
 - You are free to select any software providing a service, that operates as a redundant a cluster
 - Requirements:
 - must have at least 4 components
 - must be web based
 - must have a database
 - must run on linux
 - cannot be a p2p/ML application
- Identify the software and the key technologies
- Identify the scenario
 - Type of users, number of users, requirements (RAM, CPU, Storage, Network).
- Present your overall strategy for deployment
 - How the software will be broken into separate components

Assignment: Report 1 – 6pt

Initial Deployment

- Describe the basic cluster operation
 - Deployment strategy
 - Identify bottlenecks
- Present and analyze strategies and configurations
 - Justify why it was done that way
 - Describe options
- Evaluate the cluster operation
 - Not a benchmark! Just a test and analysis of the results
- Goals:
 - Use of multiple pods, multiple nodes
 - Use of stateful sets, configmaps, secrets, persistent volumes
 - Access through Ingress

Assignment: Report 2 – 7pt

Reliable Deployment

- Report of the full cluster operation
 - Automatic deployment
 - Autoscaling
 - Healthchecks
 - Redundancy and disaster recovery
 - Integrated monitoring and observability of product operation
 - Observability of long term operation