



# Distributed Systems

BSc (H) Applied Computing – Year 4

BSc (H) Computer Forensics & Security – Year 4

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# Overview

- “. . .to comprehend the architecture of a modern, distributed (cloud-based), service-oriented application and the skills to develop and deploy same for a constrained set of requirements . . .” (Module Spec.)
- Key themes:
  - Infrastructure As Code (IaC)
  - Serverless
  - Scalability.
  - Microservices architecture
  - Event-driven architecture
- Language: TypeScript

# Pre-requisites

- An AWS account (<https://aws.amazon.com/> )
- Installed locally:
  - AWS CLI installed locally (see <https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html>)
  - NodeJs platform
  - VS Code editor
  - Git tool
- A GitHub account
- Knowledge of JavaScript



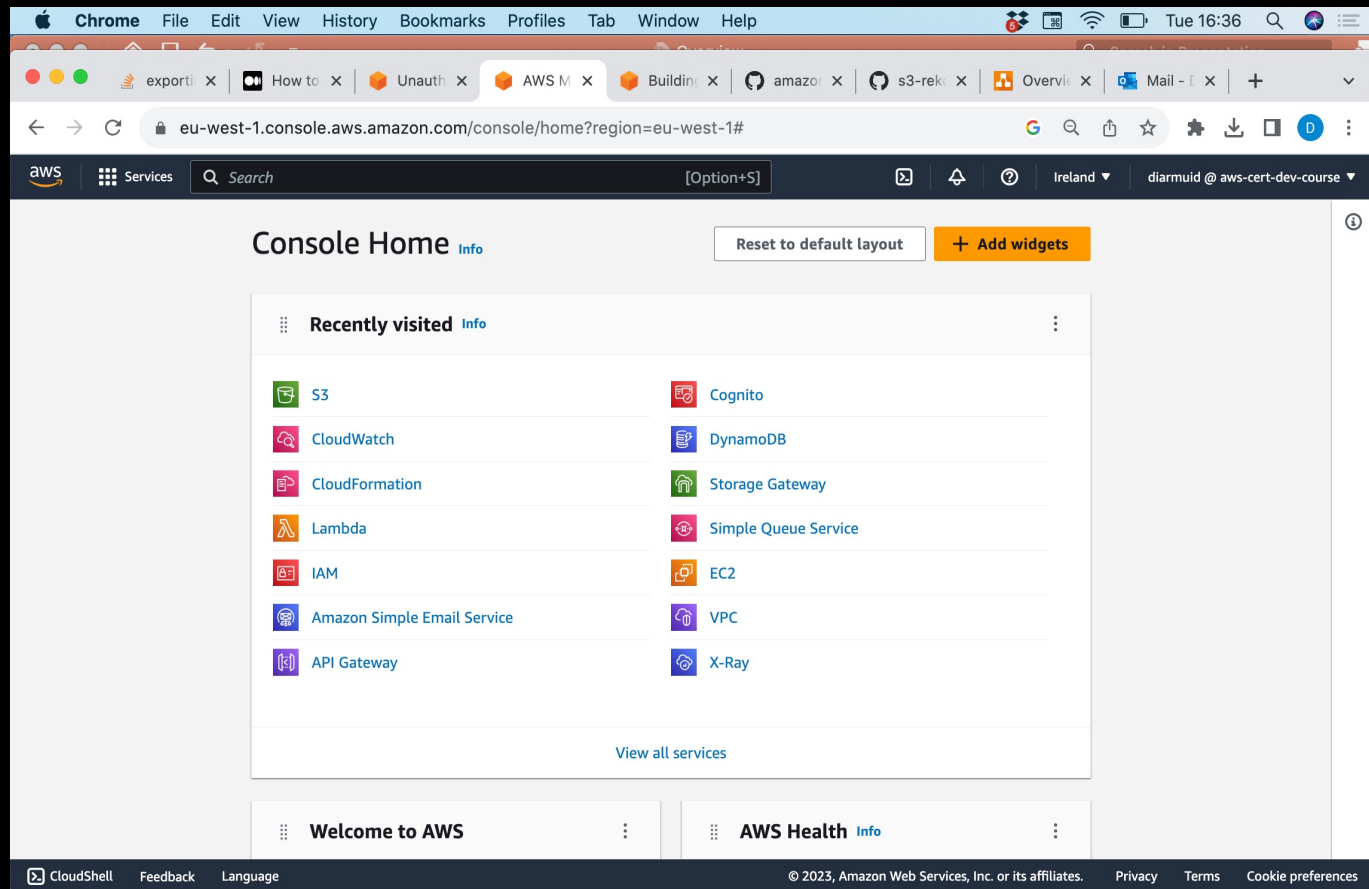
A screenshot of a terminal window with a dark background. The prompt is 'diarmuidoconnor'. The first command is 'aws --version', which outputs 'aws-cli/2.2.28 Python/3.8.8 Darwin/19.6.0 exe/x86\_64 prompt/off'. The second command is 'node -v', which outputs 'v18.13.0'. The third command is partially visible as 'diarmuidoconnor'. At the bottom, a status bar shows 'You, 1 second ago', 'Ln 44, Col 9', 'Spaces: 2', 'UTF-8', 'LF', and a file icon.

```
diarmuidoconnor ~$ aws --version
aws-cli/2.2.28 Python/3.8.8 Darwin/19.6.0 exe/x86_64 prompt/off
diarmuidoconnor ~$ node -v
v18.13.0
diarmuidoconnor ~$
```

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# Pre-requisites

- The (AWS) Management Console



# Module facts

- Contact hours:
  - Two lectures (Online) + Two lab hours.
- Assessment:
  - 100% Continuous Assessment
    - Lab work handups (15%)
    - Two assignments (40%)
    - Lab-based exam (Week 13 – 45%)
- Resources:
- Website – <https://tutors.dev/course/distributed-systems-setu-deise>
- Moodle – <https://moodle.wit.ie/course/view.php?id=209056>
  - For assignment submissions only.
  - Self-enrolment – Use Enrolment key = ds24

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Module overview,

The module's context, themes and structures.

Typescript Language.

A crash course on the Typescript language from a Javascript...

CDK framework.

Imperative infrastructure as code (IaC). Resource...

Serverless Architecture.

The rationale for serverless and the main AWS services that...

Application Architecture.

The evolution of architecture from monolith to...

Messaging.

AWS services that enable decoupling of components - SQS, SNS.

Lecture Recordings.

The complete set of lecture videos.

https://tutors.dev/topic/distrib-systems-ssd-2024-setu-deise/topic03