

# Fast track your Amazon AWS cloud technical skills



2pi Software, in collaboration with Country Universities Centre (CUC) will offer professional training courses for Cloud Computing. These courses are tailored for individuals who want to either step into a new career without attending a long and expensive training curriculum or extend their current knowledge of computing and IT into this AWS cutting edge technology.

The courses will be delivered at CUC centres across regional Australia either as in-class sessions or via streaming to CUC's first class training facilities.

When applying for these courses, the following provisions apply:

- The Country Universities Centre is an approved member of AWS Educate. This means that participants in this course will be able to access AWS Educate online. Following course completion, participants will be assigned a CUC email address, and entitled to student benefits arising from CUC's Amazon Educate membership for a limited period.
- The content in this course is drawn from a number of sources including, but not limited to AWS, and that this course content may not fully align with activities and qualifications provided by AWS through its online educational service. Please note: This course does not sit within the Australian Qualifications Framework, however a certificate of attendance will be issued to participants on completion of the course.

## Course Structure

Participants will receive some written material, however the bulk of the information will be the online information repositories of the respective cloud providers, ie. AWS. The course will focus on hands-on experience from the start, so each block will have some form of practical component, which will keep students engaged and fosters participation and discussion. It is important that computers and internet connection is provided by the venue or by the students themselves.

## Course Outline

### Day 1 - Introduction to Cloud Computing, AWS and WordPress

This segment introduces general concepts of cloud computing with examples in the AWS environment. The focus is to apply AWS services in the context of hosting a very simple website.

### Course 1.1 Introduction to cloud computing concepts and terms. Overview of AWS services.

● Cloud Computing vs. On-Premise Data Centre ○ Scalability

○ Security

- Different types of Cloud Computing
- Software as a service SaaS, eg. Gmail, Office 365, Xero
- Platform as a service PaaS, Google App-Engine, Zoho Creator, Salesforce
- Infrastructure as a service IaaS, Amazon Web Services, Google Cloud, Azure

## ● AWS

- Core Services: EC2, VPC, IAM, S3, Route 53, RDS, SES
- Serverless computing: Lambda, SQS, DynamoDB, API Gateway
- Infrastructure as Code: Cloudformation, Code Star
- Convenience Services: Elastic Beanstalk, Lightsail
- Enterprise Computing: Workspaces, Work Docs, Work Email
- Other: AI, IoT, Big Data, Data Warehouses, Alexa

### **Practical: Sign up for an AWS account and set it up so that it is secure.**

- Participants sign up with CUC or personal email address and credit card.
- Securing the account in IAM
  - Choosing a password policy
  - Enabling MFA
  - Set up user accounts other than root user
  - Set up read-only access with role change to admin

### **Learning Outcomes**

- Understanding benefits and limitations of cloud computing
- Broad understanding of areas of services in AWS
- Able to set up new user accounts securely

### **Course 1.2 Introduction to the core concepts of the “virtual data centre” that are needed for hosting websites and web applications.**

- Understanding the core components of a (virtual) data centre

- AWS Physical setup: Regions, Availability Zones
- Compute: EC2, AMI, Instance, Instance Type, EBS Volumes, Pricing models
- Networking: VPC, Security Groups, Internet Gateway, Routing Table, Subnets, Route 53

## **Practical: Exploration of the AWS web console, setting up a basic VPC and an EC2 instance**

- VPC Tab
  - Setup a new VPC
  - Setup Subnets in each AZ
  - Setup Internet gateway
  - Setup routing table
  - Setup Security groups
- EC2 Tab

### Services Overview

- Instances, AMI, Snapshots, EBS
- *Aside: AWS Pricing Calculator!*
- Startup a new instance
- Shutdown behaviour
- Private IP , public IP , elastic IP **Learning Outcomes**
- Ability to navigate AWS console
- Understanding of EC2 pricing calculations
- Ability to setup a basic VPC and EC2 instance

## **Course 1.3 Overview: WordPress Content Management System**

## ● WordPress Introduction and Overview

- Frontend / Backend
- Files / Database
- Plugins / Themes

### **Practical: Installing WordPress CMS on a linux based EC2 instance.**

- Introduction to basic Linux tools
    - Linux distributions, Ubuntu, Red Hat, AWS AMI
    - SSH and passwordless login with keys
    - Filesystem layout and navigation
    - Basic Linux commands: sudo, apt, yum, ls, chmod, unzip, tar, nano, mkdir, rm, wget
    - Uploading and downloading files: SCP
  - Introduction Apache Webserver
    - Configuration files
    - Starting, Stopping, Restarting
  - Introduction to Mysql database
    - Installation, creating new database and user
    - login for basic queries
    - Backup and restore with mysqldump
    - Starting, Stopping, Restarting
  - Installing PHP and related libraries
  - Download and install WordPress
- Learning Outcomes**
- Understanding WordPress basics
  - Ability to install Apache, MySQL, PHP on a Linux server



## **Day 2 - Introducing Resilience and Reliability**

This segment extends the hosting architecture to add extensive resilience and reliability. This covers load balancing, auto scaling, relational database service and elastic file system.

## **Course 2.1**

Discussing Website resiliency and reliability in terms of visitor traffic, hacks and spamming.

- Discuss risks of hacking and looking at securing a WP site with plugins
- Discuss penetration testing and looking at online tools
- Discuss benefits of backups and looking at backup regime with regular restore testing
- Discuss Practical: Setup firewall systems on Linux and WordPress plugin.
- **Course 2.2** Discussing design for reliability with a focus on the database component of a website. Introducing AWS Relational Database Service. Practical: Setup RDS for the wordpress site.

## **Course 2.3**

Exploring reliability from a traffic and network load perspective. Introduction to load balancers and autoscaling. Practical: Setup a load balanced, autoscaling WordPress site.

## **About the Instructor**

Carsten Eckelmann, 2pi Software co-founder and Director, has a Masters degree in Computer Science and over 20 years professional experience in software development and consulting in a multitude of industries. In everything he does, his focus is on the users of technology, striving to make systems work for people

and not vice versa. Carsten has been using Amazon AWS for over 8 years and has been a major driver of the 2pi Software Amazon AWS Consulting Division which manages cloud infrastructure for nationally prominent organisations such as Bega Cheese, Artifax and Surround Australia.

2pi Software offers infrastructure as code AWS consultancy services to large enterprises throughout Australia and is establishing itself increasingly in the Canberra/ACT region.

### **We will provide you with**

- Wifi
- Drinks: Water, Tea, Coffee
- Light Lunch

### **You are encouraged to bring**

- Laptop
- Mobile Phone (used during AWS sign-up process)
- You will need a credit card to sign up for Amazon Web Services
- You will need access to your email account