Programma AWS @ Università Italiana

Proposta di Crediti Formativi Universitari (CFU) per
Università di Catania

Att.ne Prof. Giacomo Morabito / Prof.ssa Daniela Giordano

CFU #1 – Fondamenti di AWS

Contenuti ed Obiettivi: in questo modulo descriveremo gli elementi fondamentali che costituiscono la parte della piattaforma AWS che riguarda gli aspetti infrastrutturali, ovvero: le macchine virtuali (istanze Amazon EC2), il contesto di networking in cui esse vengono deployate, le varie tipologie di storage per esse disponibili, gli aspetti di security entro i quali configurarle e infine come monitorarle ed esplorarne i log. I lab inclusi in questo modulo permetteranno di:

- Creare una istanza Amazon EC2 con a bordo Linux che funga da Web Server
- Creare delle subnet all'interno di una Amazon VPC (Virtual Private Cloud)
- Creare e gestire un bucket su Amazon S3
- Creare delle policy di sicurezza nell'ambito di Amazon IAM (Identity and Access Management)

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Welcome & Introductions

Let's get started with AWS!

👥 Welcome

Duration *
15 ⌄ min

9:00 AM - 9:15 AM

+

Introduction to Amazon Cloud & EC2 Overview

A high level introduction to the AWS cloud and an overview of the Elastic Compute Cloud (EC2).

🖥 Presentation

Duration *
45 ⌄ min

9:15 AM - 10:00 AM

+

Getting Started with Linux on EC2

This lab will walk you through launching, configuring, and customizing a web server on Amazon EC2 using the AWS Management Console.

✎ Lab

Duration *
45 ⌄ min

10:00 AM - 10:45 AM

+

Break

Take a minute to relax...

☕ Break

Duration *
15 ⌄ min

10:45 AM - 11:00 AM

+

Networking in AWS

Details on AWS networking functionality and offerings such as VPC, ELB, Direct Connect, and Route 53.

🖥 Presentation

Duration *
45 ⌄ min

11:00 AM - 11:45 AM

+

VPC Lab

Creating a multi-subnet VPC.

✎ Lab

Duration *
45 ⌄ min

11:45 AM - 12:30 PM

+

Lunch

Enjoy your meal!

☕ Break

Duration *
60 ⌄ min

12:30 PM - 1:30 PM

+

Storage in AWS

Details on AWS storage products and features such as EBS, S3, EFS, Glacier, and Storage Gateway.

🖥 Presentation

Duration *
45 ⌄ min

1:30 PM - 2:15 PM

+

S3 Lab

Create and manage S3 buckets and objects.This lab will walk you through the following: Creating a bucket in S3, adding an object to the S3 bucket, view the object in S3, move the object in S3, enable bucket versioning, delete the object and the bucket in S3

✎ Lab

Duration *
30 ⌄ min

2:15 PM - 2:45 PM

+

Break

Take a minute to relax...

Break

Duration *
15 min

2:45 PM - 3:00 PM

AWS Security Overview

A discussion around AWS cloud security concepts such as the "Shared Responsibility Model", IAM, and the AWS security center.

Presentation

Duration *
45 min

3:00 PM - 3:45 PM

IAM Lab

This introductory lab is broken into the following parts: Part One: You will create two customer-managed IAM policies. Part Two: You will create four AWS IAM users. Part Three: You will create one AWS IAM group. Part Four: You will create two AWS IAM roles. Part Five: You will test the access your configuration has provided. Part Six: You will cleanup resources configured in the lab environment.

Lab

Duration *
30 min

3:45 PM - 4:15 PM

Monitoring and Logging on AWS

Overview of the AWS Monitoring and Logging options across Performance, Availability, Security and Cost areas

Presentation

Duration *
45 min

4:15 PM - 5:00 PM

Conclusion & Next Steps

Here are some resources for you until next time...

Conclusion

Duration *
15 min

5:00 PM - 5:15 PM

CFU #2 – Architettare su AWS

Contenuti ed Obiettivi: in questo modulo esploreremo le principali best practices architetturali e di resilienza su AWS, analizzeremo il ruolo di importanti servizi quali Amazon Cloudfront (la Content Delivery Network) e Amazon Route53 (il DNS), approfondiremo il mondo dei database gestiti su AWS (Amazon RDS e Amazon Aurora). I lab inclusi in questo modulo permetteranno di:
- Configurare Amazon Cloudwatch per il monitoraggio
- Lavorare su Amazon RDS
- Lavorare su Amazon Aurora MySQL

Architecture Best Practices

A discussion around AWS architecture best practices for building scalable, resilient, and fault-tolerant cloud architectures.

Presentation

Duration *
45 min

9:00 AM - 9:45 AM

Resiliency Best Practices

Best practices in Backup, HA, DR and multi-region considerations in AWS.

Presentation

Duration *
45 min

9:45 AM - 10:30 AM

Break

Take a minute to relax...

Break

Duration *
15 min

10:30 AM - 10:45 AM

Monitoring on AWS Lab

Utilize Amazon CloudWatch to track EC2 CPU Utilization and setup Alarm based on configured threshold

Lab

Duration *
45 min

10:45 AM - 11:30 AM

CloudFront and Route 53

A discussion around content delivery networks, edge locations, our DNS offerings.

Presentation

Duration *
45 min

11:30 AM - 12:15 PM

Lunch

Enjoy your meal!

Break

Duration *
60 min

12:15 PM - 1:15 PM

Databases in AWS

Details on AWS databases products and features such as RDS, Redshift, DynamoDB and ElastiCache.

Presentation

Duration *
45 min

1:15 PM - 2:00 PM

RDS Lab

Create and manage RDS instances.

Lab

Duration *
45 min

2:00 PM - 2:45 PM

Break

Take a minute to relax...

Break

Duration *
15 min

2:45 PM - 3:00 PM

Amazon RDS Aurora

A discussion around Amazon Aurora, relational database built for the cloud

Presentation

Duration *
45 min

3:00 PM - 3:45 PM

Aurora MySQL Lab

Create and manage Aurora instances.

Lab

Duration *
60 min

3:45 PM - 4:45 PM

Conclusion & Next Steps

Here are some resources for you until next time...

Conclusion

Duration *
15 min

4:45 PM - 5:00 PM

CFU #3 – Sviluppare su AWS

Contenuti ed Obiettivi: in questo modulo esploreremo i fondamenti dello sviluppo di applicazioni su AWS, approfondiremo il database NoSQL Amazon DynamoDB, introdurremo gli sviluppi Serverless attraverso AWS Lambda, illustreremo le funzionalità di Amazon API Gateway (per la pubblicazione e instradamento delle chiamate API) e di Amazon Elastic Beanstalk (servizio di orchestrazione per il deployment di applicazioni su AWS).

I lab inclusi in questo modulo permetteranno di:
- Praticare alcune tematiche relative agli sviluppi Serverless
- Creare una applicazione basata su Amazon API Gateway
- Sperimentare su Amazon Elastic Beanstalk

Developing Apps in AWS

A discussion around best practices, SDKs, and services used to develop applications on AWS.

🖥 Presentation

Duration *
45 ⬍ min

9:00 AM - 9:45 AM

Amazon DynamoDB

A discussion around Amazon DynamoDB, Fast and flexible NoSQL database service for any scale

🖥 Presentation

Duration *
45 ⬍ min

9:45 AM - 10:30 AM

Break

Take a minute to relax...

☕ Break

Duration *
15 ⬍ min

10:30 AM - 10:45 AM

Introduction to Lambda

Learn how to run code without provisioning or managing servers.

🖥 Presentation

Duration *
45 ⬍ min

10:45 AM - 11:30 AM

Serverless Development

With services like AWS CodeStar, AWS Cloud9, AWS Lambda and Amazon API Gateway, developers can very easily develop, debug, and deploy serverless applications in the cloud.

✏ Lab

Duration *
45 ⬍ min

11:30 AM - 12:15 PM

Lunch

Enjoy your meal!

☕ Break

Duration *
60 ⬍ min

12:15 PM - 1:15 PM

API Gateway

API Gateway

🖥 Presentation

Duration *
45 ⬍ min

1:15 PM - 2:00 PM

API Gateway Lab

Creating an API Gateway based application.

✏ Lab

Duration *
45 ⬍ min

2:00 PM - 2:45 PM

Break

Take a minute to relax...

☕ Break

Duration *
15 ⬍ min

2:45 PM - 3:00 PM

Amazon Elastic Beanstalk

Deploy, Manage, and Scale Your Apps with AWS OpsWorks, AWS Elastic Beanstalk, and Code* Part 1

Presentation

Duration *
45 min

3:00 PM - 3:45 PM

Elastic Beanstalk Lab

Introduction to Elastic Beanstalk.

Lab

Duration *
45 min

3:45 PM - 4:30 PM

Break

Take a minute to relax…

Break

Duration *
15 min

4:30 PM - 4:45 PM

AWS Docs and Resources

Overview of AWS documentation, blogs, Quick Starts, and Solutions

Presentation

Duration *
45 min

4:45 PM - 5:30 PM