



# ***TechNovation***

## **Workshop Series 2024**

Inaugural Workshop

### ***Advanced DevOps and Cloud Computing***

#### **Workshop Presenter**

Presenter: Nicolas El Khoury, Global Director of Technology at EDT&Partners, and Lecturer at Lebanese American University (LAU)

Short Bio: Mr. El Khoury is an accomplished Computer Engineer and an established figure in the domains of DevOps, Cloud Infrastructure, and Software Engineering. As the Global Director of Technology at [EDT&Partners](#), Mr. El Khoury leads the technical department dedicated to optimizing clients' journeys on AWS. His past roles as DevOps Engineer, Software Engineer, and Solutions Architect, reflect his expertise leading teams of developers and DevOps Engineers, fostering a collaborative and innovative work environment. Mr. El Khoury co-founded the AWS Beirut User Group, organizing and delivering numerous workshops and tutorials related to AWS. As a member of the AWS Community Builders, he has also contributed valuable articles on AWS for the global tech community. Mr. El Khoury's impact extends to academia, where he serves as a Lecturer at the Lebanese American University. His dedication to advancing the field of technology is evident through a series of notable publications and his recent launch of a highly acclaimed course on Udemy.



**EDT & PARTNERS**



#### **Workshop Information**

Title: Advanced DevOps and Cloud Computing Concepts

Subtitle: Advanced DevOps, Microservices, and Amazon Web Services Concepts and Use Cases.

Date: Saturday April 6<sup>th</sup> 2024

Community partners: ACM SIGAPP French Chapter, IEEE Lebanon Section, and IEEE Young Professionals Lebanon.



## Workshop schedule

Session 1	
11:00 - 11:05 (GMT+2)	Welcome notes
11:05 - 11:10 (GMT+2)	Speaker Introduction
11:10 - 11:30 (GMT+2)	Introduction to DevOps, Microservices, and Cloud Computing
11:30 - 13:30 (GMT+2)	DevOps, Microservices, and Cloud Computing: Essential Concepts
13:30 - 14:30 (GMT+2)	Lunch break
Session 2	
14:30 - 15:00 (GMT+2)	Production-ready Systems: DevOps Design Considerations
15:00 - 15:30 (GMT+2)	Introducing the NK-Microservices Application
15:30 - 15:45 (GMT+2)	Creation of a Highly Available Network Infrastructure
15:45 - 16:30 (GMT+2)	Creation of Highly Available Database Cluster
16:30 - 17:00 (GMT+2)	Highly Available Deployment of Backend Applications
17:00 - 17:15 (GMT+2)	Coffee break
17:15 - 17:30 (GMT+2)	Wrapping up



## Workshop Description

### 1. Participant outcomes: What will participants learn in the workshop?

- Characteristics, advantages, disadvantages and use cases of Microservices, DevOps, Cloud Computing (AWS).
- Deployment strategies for websites and web applications.
- Advanced use cases of AWS services (e.g., Amazon EC2, AWS Fargate, Amazon Route53, Amazon Cloudwatch, etc).
- Advanced knowledge of containers (e.g., Docker) and container orchestration tools (e.g., Docker Swarm, AWS Fargate).
- Design considerations for production-ready systems. Advanced concepts of production-ready Deployments.

### 2. Pre-requisites: What are the requirements or pre-requisites for taking the workshop?

- 1+ years of experience in the software industry.
- Good knowledge or experience Backend development.
- Good knowledge or experience in Linux Systems.
- Good knowledge or experience in website and web application development.
- Good technology background.
- Good networking background.

### 3. Target audience: Who is this workshop for?

- Technical Leads and CTOs.
- Intermediate (1-2 years of experience) Software Engineers.
- Intermediate (1-2 years of experience) System Administrators.
- Candidates looking to expand their knowledge or experience in web application deployment, DevOps processes, microservices, and cloud computing.

### 4. Workshop description

The advancement of technology allowed for the digitization of almost everything in our lives. Education, Healthcare, Banking, Commerce, Gaming have all been made possible thanks to the internet, and the tools built around it. Building, delivering, and maintaining applications to serve those industries could no longer be properly accomplished using the traditional ways. Functionalities and use cases that need to be translated into technical realizations are becoming more complex. The success of the business is now highly dependent on a performant and efficient technical product, developed and maintained by a coherent team. DevOps, Microservices, and Cloud Computing are three of the most controversial topics that revolutionized the tech industry. When properly applied within an organization, these three tools aim to maximize the value of the technical product being developed, especially at scale:

- “*Microservices*” is an architectural pattern for designing highly scalable, and complex software solutions.
- “*Cloud Computing*” is an infrastructure as a service model that allows organizations to quickly and effectively serve software solutions, on large scale.



- “DevOps” is a philosophy of work, a set of tools and best practices, that allows an organization to bridge the gap between technical departments, enabling a more effective software delivery pipeline.

Applying DevOps, Microservices, and Cloud Computing is now paramount for the healthy and successful continuity of a tech-based business. This workshop aims to demystify DevOps, Microservices, and Cloud Computing, allowing to:

- Make informed technical decisions within tech teams and organizations.
- Improve the performance of the technical product and team behind it.
- Effectively deploy and manage Microservices on the cloud.

The workshop is divided into the following main sections:

- **Introduction to DevOps:** A purely theoretical and conceptual section dedicated to defining and highlighting the importance, advantages, disadvantages, and use cases of Microservices, DevOps, and Cloud Computing.
- **Basics of DevOps:** A conceptual and practical section that aims to apply the different concepts learned in the previous section. Each lecture is comprised of a theoretical part, in which certain concepts are explained, and a practical part, consisting of exercises and demos, to apply the knowledge learned and to make sense of the information acquired. Amazon Web Services will be used in the demos, which will offer a great overview of cloud computing in general and AWS in particular.
- **Production-ready Deployments and Design Considerations:** A conceptual and practical section that explains the minimum required design considerations for production-ready deployments of web applications, especially Microservices. To better understand the requirements, a production-like deployment for a Microservices-based web application is performed.