



# DevOps Master Architect Workshop

## Company Overview

Quadralogics is a boutique training firm that specializes in DevOps training and consulting. Since our inception in 2014, QuadraLogics has facilitated more than 150+ corporate and public workshops enabling more than 10,000+ practitioners. We are trusted partners with global brands like Coursera, Pluralsight, Udacity, KnowledgeHut, etc and enable them in designing/delivering technical content and training. Quadralogics today is one of the most trusted training/content producers and a premium player in the B2B DevOps market.

# About DevOps Master Architect Workshop

The **DevOps Master Architect Workshop** is a holistic, comprehensive program that covers 15 most leading tools used across the DevOps spectrum. This program spans for 12 weeks which includes 8 weeks of workshop and 4 weeks for a capstone project. We use a technique called “Task-based learning”. In this approach, the practitioner learns by exploring 200+ hands-on, real-life scenarios. This unique style enables the practitioner to be more competent and highly productive from day 1. The program also includes 3 hours of live dedicated doubt clearance sessions for every week of workshop to ensure your doubts are cleared and you are confident on the subject. In order to ensure high quality, we only intake a maximum of 20 students per batch in the live doubt clearing session.

## Key Features

- Exclusive learning on hands-on DevOps
- 40 hours of self-paced video content
- 16 certifications
  - 15 individual certifications and 1 master certifications
  - All certifications are verifiable and hosted on [certifyme.online](https://certifyme.online) digital credential platform
- Lifetime Access to QLS DevOps Community
- 100 hrs of bonus Videos on topics in the field of Agile engineering, DevOps , DevSecOps etc
- Exclusive content access via LMS for 6 months

# Overview on Our Workshop content

Our workshop is split into 15 modules parsing the most common DevOps tools like Docker , Kubernetes , Git etc. Details of each modules are given below

## Docker in Action

Docker is the most preferred open source container platform used to create, test and deploy containerized applications. Containers allow us to package up an application with its dependencies, such as libraries and other configurations. Thus, enabling the application to run reliably on any computing environment. This hands -on workshop enables participants on practical aspects on how they could work with Docker containers.

## Introduction to DevOps

DevOps is the combination of cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity. This training enables participants to understand various aspects of how they could enable a DevOps culture.

## Infra as Code with Chef

Chef is a powerful automation platform that transforms infrastructure into code. Whether you're operating in the cloud, on-premises, or in a hybrid environment, Chef automates how infrastructure is configured, deployed, and managed across your network. This hands-on introductory workshop could enable you to get started with infrastructure automation with Chef

## CI/CD Pipeline Using Jenkins

Jenkins is an open source automation server which helps automate activities like build, test, package, deployment which are typical stages of any software development process. Hence it enables teams to build CI/CD pipelines and is a key part of DevOps tooling. This hands-on workshop enables participants on practical aspects on how they could fully automate and build their CI/CD pipeline.

## Git Hands-on Workshop

Git is the most widely used and preferred distributed version control system. Git is used for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows. This is a keyboard driven workshop to enable participants to gain in depth practical knowledge.

## Decoding Kubernetes

Kubernetes is the most popular open source container orchestration tool. It discards all the manual processes required in deploying and scaling of the containers. This is highly used in today's world where microservices architecture is predominant. This hands-on workshop enables each of the participants with the practical knowledge of Kubernetes.

## Hands on Ansible

Ansible is an open source configuration management tool that help us to improve the reliability, consistency and quality of our IT infrastructure. It also helps us in provisioning our infrastructures depending on our requirements. This hand-on workshop enables each of the participants with the technical know-how of using Ansible

## Programming Puppet

Ansible is an open source configuration management tool mainly used for provisioning IT infrastructure. It's one of the oldest configuration management tools used in DevOps. Main reason behind its popularity is that it's written in system admin point of view that doesn't require a large amount of programming skills. This hand-on workshop enables each of the participants with the technical know-how of configuration management using Puppet.

## Terraform

Terraform is an open-source infrastructure as code software tool created by HashiCorp. It enables users to define and provision a data centre infrastructure using a high-level configuration language known as Hashicorp Configuration Language, or optionally JSON.

## AWS CloudFormation

AWS CloudFormation provides a common language for you to model and provision AWS and third-party application resources in your cloud environment. AWS CloudFormation allows you to use programming languages or a simple text file to model and provision, in an automated and secure manner, all the resources needed for your applications across all regions and accounts. This gives you a single source of truth for your AWS and third-party resources.

## Chef InSpec

Chef InSpec is an open-source framework for testing and auditing your applications and infrastructure. Chef InSpec works by comparing the actual state of your system with the desired state that you express in easy-to-read and easy-to-write Chef InSpec code. Chef InSpec detects violations and displays findings in the form of a report but puts you in control of remediation.

## Monitoring with Nagios

Nagios Core is one of the most popularly used open-source free monitoring tools. It helps us to monitor the health of the servers, applications services and even databases.

## Bonus Topics

### Slack integration with DevOps tools

As our software industry is getting more and more complex and moves faster we need to implement DevOps way of working emphasising on active collaboration between Dev and Operations team. Thus Slack started becoming an inseparable part of automated Devops pipelines. It could be used for anything starting from code reviews to cross functional interaction between teams helping us deliver our products faster

### GitHub Actions

GitHub Actions are now the newest trend in the industry slowly replacing other CI/CD servers. It kind of automates your software workflow. We can now build , test and deploy code from the GitHub making our work easier and faster

### AWS DevOps

AWS DevOps is exclusively from AWS helping us to implement DevOps using their own specific tools and services.AWS CodeBuilds help us with a complete solution for performing continuous integration with compilation of code , testing etc. Another common service is AWS CodePipeline which is a Continuous delivery service that helps us in creating faster release pipelines.AWS CodeDeploy is another commonly used service from AWS helping in deployment to a variety of compute services like EC2.

## Introduction to DevSecOps

As our software industry started to expand there also occurred a necessity for securing our systems and applications from cyber attacks and thefts. Security is given utmost importance these days. In our DevSecOps way of working security aspects are given a lot of focus all throughout the delivery pipeline starting from the initial stages.

### Prerequisites

1. Knowledge of Basic Linux systems commands
2. No prior Developing/scripting skill is need by the Trainee must have to will to learn and code along with the trainer
  - a. In case you have zero development or scripting skills do reach out to the trainer for additional training content
3. An SSH terminal to access VM's in the cloud
4. The trainee would be asked to create their VM in AWS cloud provider hence an SSH terminal to access VM's in the cloud is needed.
5. Trainees would have to create VM's using his/her accounts and most of the training would get covered in AWS free tier servers. Only for a few advanced modules trainee would need to get high end systems for which trainee might need to spend a required amount in AWS.

# Detailed Workshop Contents

## Introduction to DevOps

### INTRODUCTION

DevOps is the combination of cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity. This training enables participants to understand various aspects of how they could enable a DevOps culture.

### COURSE OBJECTIVE

Delivered through a mix of lectures and hands on demos one will

1. Understand the concept and principles behind DevOps
2. In depth understanding on DevOps practices
3. Practical knowhow on building DevOps pipelines
4. Gain in depth practical knowledge in DevOps culture, tools and practices

## COURSE AGENDA

1. DevOps - An overview
  - a. What is DevOps?
  - b. Wall of Confusion
  - c. Why DevOps?
  - d. Agile and DevOps
  - e. Lean Philosophy
2. 4 Key Principles of DevOps
  - a. Holistic System Thinking
  - b. No Silos
  - c. Rapid and useful feedback
  - d. Automate drudgery away
3. DevOps Practices
  - a. Practices to enable BizDev Collaboration
  - b. Practices to enable DevTest Collaboration
  - c. Practices to enable DevOps Collaboration
  - d. Infra as Code
  - e. Containerization
  - f. Monitoring
4. DevOps Culture
  - a. Case Study
  - b. Transformation
5. Generic Overview on DevOps Tools
6. Building Continuous Delivery (CD) Pipeline - keyboard driven demo
  - a. Test Automation
  - b. Continuous Integration
  - c. One click deployment
  - d. Pipeline as a Code

## TARGETED AUDIENCE

Developers, Testers, Project Managers, Scrum Masters, Admin, Leadership, Product Owner

# Docker in Action

## INTRODUCTION

Docker is the most preferred open source container platform used to create, test and deploy containerized applications. Containers allow us to package up an application with its dependencies, such as libraries and other configurations. Thus, enabling the application to run reliably on any computing environment. This hands -on workshop enables participants on practical aspects on how they could work with Docker containers.

## COURSE OBJECTIVE

This hands-on workshop is structured such that one will

1. Learn how to install and setup Docker in your work environment
2. Will enable you to build your first Docker containers.
3. You will understand advanced Docker topics like container orchestration, Docker Swarms

## PREREQUISITES

Basic understanding of Linux is the prerequisite for this course.

## COURSE AGENDA

1. Containerization
  - a. Introduction of Virtualization
  - b. Introduction of Containerization
  - c. Dockers vs. VMs
2. Installation of Docker
3. Docker Key Concepts
  - a. Docker CLI
  - b. Docker Daemon
  - c. Docker Engine
  - d. Docker Machine
  - e. Docker Images
  - f. Docker Container
4. Docker Architecture
5. Docker Basic Workflow
  - a. Create images using Dockerfile
  - b. Running Containers
6. Docker compose files
  - a. Bringing up multiple containers in a Docker host
7. Docker Volumes
  - a. Volume mounts
8. Docker Networking
  - a. Bridge Network
  - b. Host Network
  - c. None Network
  - d. Overlay Network
9. Container Orchestration
  - a. Introduction to Docker Swarms
  - b. Services

## TARGETED AUDIENCE

Developers, Testers, Project Managers, Scrum Masters, Admin

# CI/CD Pipeline Using Jenkins

## INTRODUCTION

Jenkins is an open source automation server which helps automate activities like build, test, package, deployment which are typical stages of any software development process. Hence it enables teams to build CI/CD pipelines and is a key part of DevOps tooling. This hands-on workshop enables participants on practical aspects on how they could fully automate and build their CI/CD pipeline.

## COURSE OBJECTIVE

This hands-on workshop is structured such that one will

1. Learn how to install and setup Jenkins in your work environment
2. Will enable you to build your first CI/CD Pipeline
3. You will understand industry best practices like pipeline as a code
4. Gain in depth practical knowledge in advanced Jenkins topics

## COURSE AGENDA

1. DevOps and Delivery Pipeline
  - a. Introduction to CI/CD
  - b. Why DevOps?
2. Installation and configuration of Jenkins
3. First Pipeline example
  - a. Scripted Pipeline
  - b. Declarative Pipeline
4. Building Continuous Integration (CI) Pipeline
  - a. Webhooks
5. Building Continuous Delivery (CD) Pipeline
  - a. Test Automation
6. Building Continuous Deployment Pipeline.
  - a. Packaging
  - b. One click deployment
7. Pipeline As a Code
  - a. The Jenkins File
  - b. Pipeline Script

## TARGETED AUDIENCE

Developers, Testers, Project Managers, Scrum Masters, Admin

# Git Hands-on Workshop

## INTRODUCTION

Git is the most widely used and preferred distributed version control system. Git is used for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows. This is a keyboard driven workshop to enable participants to gain in depth practical knowledge.

## COURSE OBJECTIVE

This hands-on workshop is structured such that one will

1. Learn how to install and setup git in your work environment
2. Will enable you to migrate your code base from other software configuration tools to git
3. You will understand the workflows one needs to follow along with best industry practices
4. Gain in depth practical knowledge in advanced git topics.

## COURSE AGENDA

1. Git Introduction
  - a. What is a version control system?
  - b. Why git?
  - c. History of git
  - d. git Installation
2. Basic Concepts of git
  - a. Three stages
  - b. git Data Model
  - c. Creating first repository
3. Branching in git
  - a. Local and Global branch
  - b. git workflow
  - c. Release branching
  - d. Branching Strategies
4. Merging
  - a. Fast Forward merge
  - b. Recursive Merge
  - c. Resolving merge conflicts
5. Working with remote repositories
  - a. Pull, Push, fetch, fork, pull request
6. Resets to undo everything in git
7. Cherry Pick
  - a. Introducing reflogs
8. Tagging approaches
9. Stashing for reusability
10. Rebasing as a strategy

## TARGETED AUDIENCE

Developers, Testers, Project Managers

# Decoding Kubernetes

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## INTRODUCTION

Kubernetes is the most popular open source container orchestration tool. It discards all the manual processes required in deploying and scaling of the containers. This is highly used in today's world where microservices architecture is predominant. This hands-on workshop enables each of the participants with the practical knowledge of Kubernetes.

## COURSE OBJECTIVE

This hands-on workshop is structured such that one will

1. Learn how to install and set up Kubernetes clusters in your work environment.
2. Will enable you to perform deployments in Kubernetes cluster.
3. You will understand advanced Kubernetes topics like deployments etc.

## COURSE AGENDA

1. Overview on containerization
  - a. Containers vs VM's
2. Introduction to Kubernetes
  - a. What is Kubernetes?
  - b. Why do we use Kubernetes?
  - c. Kubernetes vs Docker Swarm
3. Installation and setup of Kubernetes cluster
  - a. Minikube
  - b. kubeadm
4. Fundamentals of Kubernetes
  - a. Nodes
  - b. Pods
  - c. Deployments
  - d. ReplicaSets
  - e. Services
5. Kubernetes Architecture
  - a. kube proxy
  - b. kube-apiserver
  - c. kube-scheduler
  - d. kube-controller-manager
  - e. kubelet

- f. Container run time
  - 6. Kubernetes dashboard
    - a. Installation and setup
    - b. Working with dashboard
  - 7. Deployments in Kubernetes cluster
  - 8. Best practices with Kubernetes
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## TARGETED AUDIENCE

Developers, Testers, Project Managers, Scrum Masters, Admin, Operations Team

# Infra as Code

## OBJECTIVE

Delivered through a mix of lectures and hands on demos one will

1. Understand the concept and principles of Infra as Code.
2. In depth understanding of how one could automate infrastructure using Chef in serverless mode
3. Practical knowhow of tools and concepts like InSpec, cookbook, recipes etc.
4. Be enabled to start with infrastructure automation using Chef readily.
5. Learn how to install and setup Ansible in your work environment
6. Will enable you to build your first Ansible playbooks.
7. You will understand advanced Ansible topics like roles, modules, facts etc.
8. Learn how to install and setup Puppet in your work environment
9. Will enable you to build your first Puppet manifests.
10. You will understand advanced Puppet topics.
11. Understand AWS CloudFormation scripting
12. Learn practical hands-on with provisioning tool Terraform
13. Understand infrastructure testing using Chef InSpec

## AGENDA

1. 1. Introduction to Infrastructure as code
  - a. a. Overview of application infrastructure
  - b. b. Why Infrastructure as code?
  - c. c. Tools for Infrastructure as code
2. Chef
  - a. Chef Installation and configurations
  - b. Get started with the “Hello World” example using Chef.
  - c. Chef Cookbooks
  - d. Test Kitchen concepts
  - e. Chef and OHAI
  - f. Chef Architecture

- i. Chef Server
  - ii. Chef Node
  - iii. Chef Workstation
  - g. Advanced Cookbook topics
  - h. Cookbook versioning
  - i. Understanding Compliance
3. Ansible
- a. Installation and setup of Ansible
  - b. Introduction to Ansible
    - i. Modules
    - ii. Plugins
    - iii. Inventories
    - iv. Playbooks
  - c. Agentless Ansible Architecture
  - d. Ad-hoc commands in Ansible
  - e. Overview of YAML language
  - f. First Ansible playbook
    - i. Set up a Nginx server
    - ii. Deploy a Spring pet clinic application
  - g. Introduction to Ansible Tower
4. Introduction to Puppet
- a. What is Puppet?
  - b. Why do we use Puppet?
  - c. Why is Puppet preferred?
  - d. Installation and setup of Puppet
  - e. Puppet Terminologies
    - i. a. Modules
    - ii. b. Resource
    - iii. c. Manifests
    - iv. d. Facts
    - v. e. Catalogues
  - f. Puppet Architecture
  - g. Puppet Master-slave communication
  - h. Writing your first Puppet code
5. Overview on Terraform
- a. Installing Terraform

- b. Build Infrastructure using Terraform
  - c. Change Infrastructure
  - d. Destroy Infrastructure
6. AWS CloudFormation
- a. Overview on AWS
  - CloudFormation
  - b. Writing first CloudFormation
  - script
  - c. Advanced CloudFormation
  - d. Automatic using
  - CloudFormation
  - ( Participants should have
  - their AWS account)
7. Chef InSpec
- a. InSpec Overview
  - b. InSpec installation
  - c. Writing first InSpec Code
  - d. TDD using InSpec

## **TARGETED AUDIENCE**

Developers, Testers, Project Managers, Admins

# Monitoring with Nagios

## OBJECTIVE

This is structured such that one will

1. Learn how to install and set up Nagios in your work environment.
2. Will enable you to perform monitoring health of servers and applications

## AGENDA

1. Continuous Monitoring
2. Nagios overview
3. Nagios Architecture
4. Features of Nagios
5. Objects and states of Nagios
6. Nagios dashboard
7. Nagios competitors

## About your Trainer



**Anju M Dominic** is a well accredited professional corporate trainer and consultant in the field of DevOps . She has conducted over 110+ hands-on workshops across different product and service companies. She is also a trainer/author across various training companies including PluralSight, Coursera, Edureka, KnowledgeHut etc. She is currently the Principal consultant and founder of QuadraLogics, a boutique training/consulting firm. Anju is well known for her contributions to technical articles which includes two books and several whitepapers in the field of software engineering. She is also a regular speaker for many DevOps and Agile conferences.

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## About your Industry mentor



**Ranjith Tharayil** is an accomplished innovator, author, entrepreneur, technologist, CTO adviser, and inspirational servant leader. He is currently the Founder and CTO of a SAAS-based Digital Credential Platform CertifyMe.Online. His SAAS-based startup enables conference and training producers to automate their credential issuing process and therefore maximize their brand presence. He has also been honored with the title "Mentor of change" by NITI Ayog, Govt of India, and was associated with the Association for Computing Machinery as "ACM Distinguished Speaker".

Prior to these ventures, he had held Technology Leadership positions as VP Accenture Agile Engineering and Head of Technology Consulting SolutionsIQ and Chief Engineer Samsung Electronics. He has authored 10 patents, 30+ articles, and 3 books across different domains he has touched.

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## Contact

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