

Why OneCloud?

OneCloud Consulting is dedicated to providing exceptional technical education and professional services. Our team of experts combine skill, knowledge, and experience in providing quality education on Cloud Transformation, Infrastructure Automation, and Software Development. Our specializations include Cloud Services, Network and Services Automation, Data Center Solution Design and Deployment Services, and Technical Strategy.

Course Description

Kubeflow has become one of the most visible open sourced projects relevant to helping make Machine Learning (ML) workflows deployable on Kubernetes. In this two-day course we will examine basic Kubeflow concepts, Machine Learning workflow lifecycles, tooling, and various ML frameworks. Our focus will be on how to use Kubeflow to take Machine Learning models to production in a scalable and portable way.

Learning Objectives

- Kubeflow's role in building machine learning workflows
- The basic Kubeflow architecture
- Tools and add-ons
- Install Kubeflow
- Deploy and manage Kubeflow pipelines
- Utilize Kubeflow components
- Monitoring and log Kubeflow

Prerequisites

- Familiarity with Container Concepts

Who Should Attend?

- Data Scientists
- Data Analysts
- Developers

Course Type:
Instructor Led Training, Classroom with Hands on Lab

Course ID:
KFLOW

Duration:
2 Day

Kubeflow

Overview and Course Agenda

Module 1: Kubeflow: What It Is and Who It Is For

- Model Development Life Cycle
- Where Does Kubeflow Fit In?
- Why Kubernetes?
- Kubeflow's Design and Core Components
- Introducing Our Case Studies
 - Modified Nation Institute of Standards and Technology
 - Mailing List Data
 - Product Recommender

Module 2: Setting Up Kubeflow

- Installing Kubeflow and Its Dependencies
- Training and Deploying a Model
- Training and Monitoring Progress
- Test Query

Module 3: Kubeflow Design: Beyond the Basics

- Notebooks (JupyterHub)
- Training Operators
- Kubeflow Pipelines
- Hyperparameter Tuning
- Model Inference
- Metadata
- Support Components
- MinIO
- Istio
- Knative
- Apache Spark

Module 4: Kubeflow Pipelines

- Getting Started with Pipelines
- Introduction to Kubeflow Pipelines Components
- Advanced Topics in Pipelines

Module 5: Data and Feature Preparation

- Local Data and Feature Preparation
- Distributed Tooling
- Putting It Together in a Pipeline
- Using an Entire Notebook as a Data Preparation Pipeline Stage

Module 6: Artifact and Metadata Store

- Kubeflow ML Metadata
- Using MLflow's Metadata Tools with Kubeflow

Module 7: Training a Machine Learning Model

- Building a Recommender with TensorFlow
- Deploying a TensorFlow Training Job
- Distributed Training
- Training a Model Using Scikit-Learn

Module 8: Model Inference

- Model Serving
- Model Monitoring
- Model Updating
- Model Inference in Kubeflow
- TensorFlow Serving
- Seldon Core
- KFServing

Module 9: Hyperparameter Tuning and Automated Machine Learning

- AutoML: An Overview
- Hyperparameter Tuning with Kubeflow Katib
- Katib Concepts
- Installing Katib
- Running Your First Katib Experiment
- Tuning Distributed Training Jobs
- Neural Architecture Search
- Advantages of Katib over Other Frameworks