AI Operations – Professional Training

Prepare for NCP-AIO Certification

OUTLINE

Training Overview

Running AI in the data center is an essential skill set for individuals involved in managing, deploying, and utilizing AI technologies.

This course covers essential aspects of operating AI data centers, including provisioning and management, running AI workloads, and implementing AI virtualization.

Participants will acquire expertise in operating essential AI building blocks such as GPUs, CPUs, and DPUs, empowering them to effectively operate an AI data center while ensuring optimal performance and uninterrupted operation.

NCP-AIO Certification

The **NCP-AI Operations (NCP-AIO)** certification is an intermediate-level credential that validates a candidate's ability to monitor, troubleshoot, and optimize AI infrastructure by NVIDIA.

This multi-day workshop is recommended training for the **NCP-AIO** certification.

Training Delivery Method

Instructor-led remote training sessions via NVIDIA Teams platform. Hands-on lab exercises focused on the AI data center operations.

Target Audience

The course is intended for administrators, DevOps professionals, and data scientists who aim to acquire the skills required to effectively run AI in the data center in the AI-driven era.

Training Duration

Remote | 4 sessions of 5 hours

Prerequisites

- Knowledge of core networking concepts and principles, including the TCP/IP model, Ethernet standards, basics of routing and switching, common network topologies, and IP addressing schemes.
- Hands-on experience in Linux-like systems administration, such as managing users and permissions, installing software packages, configuring network settings, and troubleshooting common issues in a Linux environment.
- Basic understanding of server hardware components and their roles in a data center environment. This includes knowledge of CPUs, memory, storage devices, and networking interfaces commonly found in servers.
- Knowledge of storage concepts and principles, including different file systems and their characteristics.
- Basic understanding of virtualization technologies, including virtual machines (VMs) and containers. You should be familiar with VM creation, management, and the role of hypervisors in virtualized environments.
- Basic understanding of artificial intelligence (AI) concepts and terminology. This may include knowledge of topics such as machine learning, deep learning, neural networks, and common AI applications.
- Before attending the course, we recommend completing the AI Infrastructure and Operation Fundamentals self-paced course. This course will provide the foundations for this training.

Training Outline

AI in the Data Center Overview

- AI Overview
- Data Center Architecture for AI Workloads

Compute Platforms for AI

- AI Compute Platforms Overview
- NVIDIA System Management (NVSM)

- GPU Monitoring with DCGM
- **Practice 1**: GPU Driver Installation
- **Practice 2:** Data Center Server and GPU Management Tools

Networking for AI

- AI Data Centers Networks

BlueField Networking Platform for AI

- BlueField Overview
- BlueField Bring-up
- Running Services on the BlueField DPU
- **Practice 1:** BlueField Initial Configuration
- **Practice 2:** Running the BlueMan Service

Storage for AI

- Storage for AI Overview
- Storage Configuration
- **Practice 1**: Testing Storage Performance

AI Data Center Management

- AI Data Center Management Overview
- Base Command Manager (BCM) Overview
    - Head Node Installation
    - Bringing Up the Cluster
    - Managing Nodes and Software Images
    - Base Command Manager Monitoring
    - Base Command Manager User Management
- Scheduling AI Workloads with Slurm
- AI Cluster Orchestration with Kubernetes

- Run:ai Administration
    - Run:ai Overview
    - Run:ai Building Blocks
    - Run:ai Manageability and Visibility
    - Run:ai Workloads
- **Practice 1:** Base Command Manager Administration
- **Practice 2**: Slurm Installation
- **Practice 3**: Kubernetes Installation

AI Virtualization

- GPU Partitioning
- Configuring MIG - Demo

NVIDIA AI Software

- NVIDIA AI Software Overview
- Using AI Applications with Containers
- **Practice 1:** - Installing and Running AI Software