

## TRAINING OVERVIEW

The course dives deep into the DGX BasePOD infrastructure and revolves around InfiniBand and Ethernet networking to get a holistic understanding of the BasePOD storage, compute, and management fabrics. The learner will be introduced to a variety of tools, built on NVIDIA's field best practices, and get the necessary knowledge and skills to fully administrate, troubleshoot, and maintain all DGX BasePOD components and services, including login and authentication, monitoring, provisioning, workload management and container management.

## TRAINING DELIVERY METHOD

Instructor-led remote or onsite training sessions via NVIDIA Academy WebEx platform. Hands-on lab exercises focused on the DGX System and network infrastructure.

## TARGET AUDIENCE

This course is aimed at IT and data center professionals. It will enable administrators to successfully administrate DGX BasePOD configurations.

## TRAINING SKU: 789-PODIV4

## TRAINING DURATION – Remote: 4 sessions of 4 hours

## TRAINING OUTLINE

### DGX System Overview

#### Unit 1: Introduction to GPU Computing

- GPU Computing Overview
- NVIDIA GPU Overview
- Networking Requirements for GPU-Computing
- NVIDIA Networking Technologies

#### Unit 2: DGX BasePOD Overview

- BasePOD Architecture
- Management Overview
- Compute InfiniBand fabric
- Storage InfiniBand fabric

#### Unit 3: DGX System Overview

- Compute Building Block
- Hardware Architecture
- Out-of-band management

### Unit 4: DGX OS & Software & First Boot

- OS, Drivers, Software Components
- Initial System Configuration
- DGX-OS Update

### Unit 5: DGX System Storage

- System Memory, NVMe Drives, Storage Fabric
- Storage types and considerations

### Unit 6: NVIDIA System Management (NVSM)

- NVSM Overview
- NVSM Architecture and APIs
- NVSM CLI – Commands and Use Cases
- DGX System Health Check with NVSM

### Unit 7: NVIDIA Data Center GPU Management (DCGM)

- DCGM Overview
- DCGM CLI Usage and Examples

### Unit 8: NVIDIA GPU Containers

- Container Overview
- NVIDIA NGC Repository Registry
- Docker and Container Management

### Unit 9: Running a Stress Test and Performance Validation

- Performance Testing Overview
- NVSM Stress-Test
- GPU Bandwidth Test
- Running a Job with Jupyter Notebook

### Unit 10: Multi-Instance GPU

- Multi-Instance GPU Overview
- MIG Setup and Usage

### **Networking and InfiniBand**

#### Unit 1: Introduction to InfiniBand

- InfiniBand Overview
- InfiniBand Key Features
- InfiniBand Fabric Components

#### Unit 2: InfiniBand Architecture and Management

- InfiniBand Network Stack
- InfiniBand Architecture
- Subnet Manage
- Fabric Addressing and Segmentation
- OFED and OFED Utilities

#### Unit 3: DGX BasePOD Fabric Topology

- Overview of Network Topology

#### Unit 4: Ibdagnet

- Ibdagnet Overview
- Fabric Debug
- Link Speed Verification

#### Unit 5: Unified Fabric Monitor

- UFM Overview
- Key Features
- Architecture
- Operational Dashboard
- Fabric Health & Logging

### Base Command

#### Unit 1: Base Command Software Platform Overview

- DGX SW Stack Overview
- DGX OS
- Magnum IO
- Base Command Manager
- NVIDIA AI Enterprise

#### Unit 2: Base Command Manager Overview

- Overview
- Base Command Manager Components
- Cluster Management Tools
- Node Provisioning
- Software Images
- Node Categories
- User Management
- Workload Management
- Health Monitoring
- Jupyter Notebooks
- GPU Configuration

#### Unit 3a: Kubernetes Overview

- Kubernetes Overview
- GPU & Network Operator
- MLOps Tools

#### Unit 3b: Slurm Overview

- Slurm Overview
- Slurm Configuration