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OpenPBS training

3 days (21 hours)

Presentation

OpenPBS is an open source workload management project for high-performance computing (HPC) environments. It optimizes job scheduling for desktops, clusters and clouds.

Created by and for HPC specialists. OpenPBS is reliable, fast, scalable and resilient. It supports all modern infrastructures and applications.

OpenPBS features an automatic failover architecture. So your jobs will never be lost, and will continue to run despite failures.

It meets site-specific objectives and service level agreements, balancing execution time and task utilization.

Thanks to our OpenPBS training course, you'll be able to manage your clusters and optimize your task scheduling. You'll also be able to use the scheduling systems supplied with OpenPBS to set up your own scheduling policy.

This OpenPBS training course will teach you the latest version of OpenPBS v20.0.1.

Objectives

- Know how to manage workloads and plan tasks for the HCP
- Install and configure OpenPBS
- Understanding OpenPBS architecture
- Installing and managing clusters
- Programming the PBS Batch script

Target audience

- HPC specialists
- Developer
- Digital project manager
- System administrator

Prerequisites

- HPC knowledge
- Knowledge of programming languages

OpenPBS training program

Introduction to PBS

- What is PBS?
- Available PBS forms: OpenPBS and PBSPro
- OpenPBS installation
- OpenPBS API
- Work by batch
- Automatic architecture

Basic managed services

- RPM-based OpenPBS packages
- OpenPBS packages in source archive form
- PBS orders
- How do you plan jobs with OpenPBS?
- Allocating computing tasks with OpenPBS

Node operation

- Scheduler program
- Execution node configuration
- Overview of each MOM configuration item
- Specify server FQDN
- Scheduler configuration

Cluster installation and management

- Installing clusters on nodes
- UNIX cluster environments
- OpenPBS CycleCloud cluster
- Define OpenPBS resources

- Installing a CycleCloud azpbs Agent

Batch Script language with OpenPBS

- How to write the PBS Batch script
- Batch PBS script parameters
- OpenMP code execution
- How do I submit a Batch PBS script?
- Check the status of a PBS Batch job

Managing jobs in OpenPBS

- How to submit jobs
- qsub program
- Creating a task script
- qsub JOBSCRIPT command to run the task
- Check job status by running qstat
- Stop task execution with qdel

OpenPBS and Ubuntu

- Installing packages
- Installing PostgreSQL
- Install the packages required to run OpenPBS
- Download and install OpenPBS
- Configuration

Software health check

- Complex health control framework
- Monitoring and mitigating failures
- Implement FIFO scheduling policy

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.