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Business & Technology Consulting SM
Education Solutions

Netezza PureData System Administration Course

Course Length: 2 days **CEUs** 1.2

AUDIENCE

After completion of this course, you should be able to:

- Administer the IBM PDA/Netezza
- Install Netezza Client Software
- Use the Netezza System Interfaces
- Understand and Manage Netezza HA Systems
- Manage Netezza Hardware
- Manage the Netezza Server
- Understand and Manage Events
- Manage Netezza Security
- Manage Data on the Appliance
- Groom the Appliance
- Backup and Restore the Appliance
- Understand and Configure Query History
- Manage Workloads
- Display and Analyse Statistics
- Manage Logins
- Encrypt Passwords
- Understand and Manage Query Auditing
- Manage Row Security on Tables

PREREQUISITES

Attendees should have sound knowledge of advanced SQL, Databases and Unix

COURSE TOPICS

Administration Overview

- Administrator's Roles and Tasks
- Initial System Setup and Information
- Netezza Software Directories
- Managing the External Network Connections and Domain Name Service (DNS) Updates
- Setting up Remote Access
- Administration Interfaces
- Other Netezza Documentation

Installing the Netezza Client Software

- Client Software Packages
- Installing Netezza CLI Client on a Linux/UNIX System
- Installing on Linux/UNIX Clients
- Setting the Path for Netezza CLI Client Commands
- Removing the CLI Clients from UNIX Systems
- Installing the Netezza Tools on a Windows Client
- Installation Requirements
- Installing the Netezza Tools/ Removing the IBM Netezza Tools
- Environment Variables

Netezza PureData System Administration Course

- Installing the Web Admin Interface/ Installing the Web Admin Server and Application Files
- Installing the RPM and Shared Library Files
- Upgrading and Removing the Web Admin Interface
- Contents of the WebAdmin Directory
- Installing the Netezza SSL Site Certificate
- Clients and Unicode Characters
- Client Timeout Controls
- Netezza Port Numbers
- Changing the Default Port Numbers and Specifying NonDefault NPS Port Numbers for Clients
- Creating Encrypted Passwords and Using Stored Passwords

Using the Netezza Administration Interfaces

- Netezza CLI Overview
- Summary of Commands Command Locations, Netezza CLI Command Syntax, Using the Netezza Commands, Specifying Identifiers in Commands
- SQL Command Overview and nzsql Command
- NzAdmin Tool Overview and Client Compatibility
- Starting the NzAdmin Tool, Logging Into NzAdmin and Connecting to the Netezza System
- Displaying System Components and Interpreting the Color Status Indicators
- Main Menu Commands and Administration Commands
- Using the NzAdmin Tool Hyperlinks
- Setting Automatic Refresh
- Controlling NzAdmin Session Termination
- Web Admin Overview, Using the Web Admin Application and Understanding the Web Admin Page Layout

Managing Netezza HA Systems

- LinuxHA and DRBD Overview
- Differences with the Previous Netezza HA Solution
- LinuxHA Administration
- Heartbeat Configuration
- CIB
- Important Information about Host and Host
- Managing Failover Timers
- Netezza Cluster Management Scripts
- Identifying the Active and Standby Nodes
- Monitoring the Cluster and Resource Group Status
- nps Resource Group
- Failover Criteria
- Relocate to the Standby Node
- Safe Manual Control of the Hosts (And Heartbeat) and Transition to Maintenance (NonHeartbeat) Mode
- Transitioning from Maintenance to Clustering Mode
- Cluster Manager Events
- Logging and Messages
- DRBD Administration: Monitoring DRBD Status and Sample DRBD Status Output
- SplitBrain
- Administration Reference and Troubleshooting
- IP Address Requirements
- Forcing Heartbeat to Shutdown
- Shutting Down Heartbeat on Both Nodes without Causing Relocate
- Restarting Heartbeat after Maintenance Network Issues
- Resolving Configuration Problems

- Fixed a Problem, but crm_mon Still Shows Failed Items
- Output From crm_mon Does Not Show the nps Resource Group
- Linux Users and Groups Required for HA
- Checking for User Sessions and Activity

Managing the Netezza Hardware

- Netezza Hardware Components and Displaying Hardware Components
- Hardware Types, Ids, Location, Roles, States
- Data Slices, Data Partitions, and Disks
- IBM Netezza / Storage Design and IBM Netezza C Storage Design
- System Resource Balance Recovery
- Hardware Management Tasks and Displaying Hardware Issues
- Callhome File
- Managing Hosts, SPUs and Disks
- Managing, Displaying, Monitoring, Regeneration and Rebalancing Data Slices
- Displaying the Active Path Topology
- Handling Transactions during Failover and Regeneration
- Automatic Query and Load Continuation
- Power Procedures
- PDU and Circuit Breakers Overview
- NEC InfoFrame DWH PDU and Circuit Breakers Overview
- Powering On and Off the NEC InfoFrame DWH Appliance

Managing the Netezza Server

- Displaying the Netezza Software Revision and Revision Levels
- Displaying the Current System State
- System States Reference: Waiting for and Managing a System State, Starting, Stopping, Pausing, and Resuming the System
- Take the System Offline and Restarting the System
- Overview of the Netezza System Processing
- System States during Netezza StartUp
- System Errors and System Logs
- Backup and Restore Server
- Bootserver Manager
- Client Manager
- Database Operating System
- Event Manager
- Flow Communications Retransmit
- Host Statistics Generator
- Load Manager
- Postgres
- Session Manager
- SPU Cores Manager
- Startup and Statistics Servers
- System Manager and System Configuration
- The nzDbosSpill File
- Display Configuration Information
- Changing the System Registry

Managing the Event Rules

- Template and Managing Event Rules

Netezza PureData System Administration Course

- Copying a Template Event to Create an Event Rule, Copying and Modifying a UserDefined Event Rule, Generating an Event, Deleting, Disabling and Adding an Event Rule
- Specifying the Event Match Criteria, Specifying the Event Rule Attributes, Specifying the Notification
- The sendMail.cfg File
- Aggregating Event Email Messages
- Creating a Custom Event Rule
- Template Event Reference
- Specifying System State Changes
- Hardware Service Requested, Hardware Needs Attention, Hardware Path Down, Hardware Restarted
- Notifications: Specifying Disk Space Threshold and Specifying Runaway Query
- Monitoring the System State, Disk Predictive Failure Errors, ECC Errors, Regeneration Errors, Disk Errors, Hardware Temperature and System Temperature
- Query History Events
- Monitoring: SPU Cores, Voltage Faults, Transaction Limits
- Events: Switch Port Events, Reachability, Availability Events and Event Types Reference, Network Interface State Change Event, Topology Imbalance Event, SBlade CPU Core Events
- Displaying Alerts

Establishing Security and Access Control

- Netezza Database Users and Groups
- Develop an Access Model
- Default Netezza Groups and Users
- Choosing a User Authentication Method
- Configuring Password Content Controls and Expiration
- Creating, Altering, and Deleting Database Users and Groups
- Security Model
- Administrator Privileges
- Object Privileges: Object Privileges on Objects and by Class, Scope of Object Privileges, Revoking Privileges and Privileges by Object, and Indirect Object Privileges
- Always Available Functions
- Creating an Administrative User Group
- Authentication: Logon, Local, and LDAP; Commands Related to Authentication Methods; Passwords and Logons
- Netezza Client Encryption and Security
- Configuration: SSL Certificate; Netezza Host Authentication for Clients
- Commands Related to Netezza Client Connection Methods
- Limits: Setting User and Group Limits, User Rowset Limits; Query Timeout Limits; Session Timeout;Specifying Session Priority
- Logging Netezza SQL Information on the Server and on the Client
- Group Public Views

Managing User Content on the Netezza Appliance

- Creating Databases and User Tables
- Understanding Table Size and Storage Space
- Best Practices for Disk Space Usage in Tables
- Database and Table Guidelines
- Accessing Rows in Tables
- Understanding Transaction IDs
- Distribution Keys: Creating, Selecting, Criteria; Choosing a Distribution Key for a Subset Table; Distribution Keys and Collocated Joins; Dynamic Redistribution or Broadcasts; Verifying Distribution
- Avoiding Data Skew and Viewing Data Skew
- Using Clustered Base Tables
- Organizing Keys and Zone Maps

- Selecting Organizing Keys
- Reorganizing the Table Data
- Copying Clustered Base Tables
- Updating Database Statistics
- Maintaining Table Statistics Automatically
- Running the GENERATE STATISTICS Command
- Just in Time Statistics
- Grooming Tables: GROOM and the nzreclaim Command; Identifying Clustered Base Tables that Require Grooming; About the Organization Percentage; Groom and Backup Synchronization
- Managing Sessions
- Using the nzsession Command
- Transactions: Running Transactions; Control and Monitoring; Transactions Per System; Concurrency and Isolation; Concurrent Transaction Serialization and Queueing, Implicit Transactions and Explicit Transactions
- Netezza Optimizer and Query Plans
- Execution Plans: Displaying Plan Types, Analyzing Query Performance; Viewing Query Status and History

Backing Up and Restoring Databases

- General Information on Backup and Restore Methods
- Database Completeness
- Portability
- Compression in Backups and Restores
- MultiStream Backup
- Special Columns
- Upgrade/Downgrade Concerns
- Compressed Unload and Reload
- Encryption Key Management in Backup and Restore
- Filesystem Connector for Backup and Recovery
- ThirdParty Backup and Recovery Solutions Support
- Host Backup and Restore: Creating a Host Backup; Restoring the Host Data Directory and Catalog
- Using the nzbackup Command and nzbackup Command Syntax
- Specifying Backup Privileges
- Backup Archive Directory
- Incremental Backups and Backup History Report
- Backing Up and Restoring Users, Groups, and Permissions
- Using the nzrestore Command and nzrestore Command Syntax
- Specifying Restore Privileges
- Maintaining Database Statistics
- Restoring Tables
- Understanding Incremental Restoration
- Symantec NetBackup Connector: Using, Installing the License; Configuring the Client; Integrating Symantec NetBackup to Netezza
- Procedures for Backing Up and Restoring Using Symantec NetBackup
- IBM Tivoli: Using the IBM Tivoli Storage Manager Connector; About the Tivoli Backup Integration; Configuring the Netezza Host; Configuring the Tivoli Storage Manager Server
- Special Considerations for Large Databases
- TSM Connector: Running nzbackup and nzrestore; Host Backup and Restore to the TSM Server ; Backing up and Restoring Data Using the TSM Interfaces; Troubleshooting
- EMC Network Connector: Using the EMC NetWorker Connector; Preparing your System for EMC NetWorker Integration; NetWorker Installation, Configuration and Troubleshooting

Query History Collection and Reporting

- Query History Concepts

- Query History and Audit History
- Planning: Query History Monitoring Needs; the History Database; Query History Configurations; Enabling History Collection; Managing Access to the History Database; Query History Loading Process; History Batch Directory Files; Configuring the Loader Process
- Query History Log Files
- Disabling History Collection
- Changing the Owner of a History Database
- Changing, Displaying and Dropping Query History Configuration Settings
- Query History Event Notifications
- Managing History Configurations Using NzAdmin
- Query History Views and User Tables
- Query History and Audit History Views

Managing Workloads on the Netezza Appliance

- Service Level Planning
- WLM Feature Summary
- Resource Sharing Design
- Concurrent Jobs
- Managing Short Query Bias
- Managing GRA
- Resource Percentages and System Resources
- Assigning Users to Resource Groups
- Resource Groups Example
- GRA Allocations Example
- Resource Allocations for the Admin User
- Allocations for Multiple Jobs in the Same Group
- Priority and GRA Resource Sharing
- Guaranteed Resource Allocation Settings
- Tracking GRA Compliance
- Monitoring Resource Utilization and Compliance
- Managing PQE
- Netezza Priority Levels
- Managing the Gate Keeper

Displaying Netezza Statistics

- Netezza Stats Tables
- Database Table
- DBMS Group
- Host CPU Table
- Host File System Table
- Host Interface Table
- Host Management Channel Table
- Host Network Table
- Host Table
- Hardware Management Channel Table
- Per Table Per Data Slice Table
- Query Table and Query History Table
- SPU Partition Table and SPU Table
- System Group
- Table Table
- Displaying System Statistics

- The nzstats Command
- Display table types and fields and specific tables.

Advanced Administration Overview

- Basic Security Model
- Advanced Security
- System Security
- Viewing Security Setup

User Login Control

- Session Context
- Concurrent Sessions
- Access Time Control
- Password Restrictions

Masquerading

- Overview
- Nesting and Stored Procedures

Key Management

- Overview
- Encrypting Passwords
- Changing Keys
- Digital Signing
- Creating and Managing Keys

Advanced Query History

- Collect History
- Controlling History Collection For Users and For Databases
- Audit Database, Data Flow, Configuration
- Outputs
- Description
- Usage
- Audit Data Digital Signing and Audit Data Capture
- Service Commands
- System State Changes
- Authentication Events

Multi-Level Security and RowSecure Tables

- Security Labels and Syntax
- Usage
- RowSecure Tables
- RST Caveats
- RST Backup and Restore
- RSTs and Concurrent Loads
- RSTs and External Tables