INFOSOFT IT SOLUTIONS

Training | Projects | Placements

APACHE CASSANDRA ADMINISTRATION

Introduction to Apache Cassandra

- Overview of Apache Cassandra
- Understanding Cassandra's architecture and design principles
- Comparing Cassandra with traditional RDBMS

Installation and Configuration

- Pre-requisites and system requirements
- Installation methods (package installation, tarball installation)
- Configuration options and best practices
- Cluster setup and initial configuration

Cassandra Data Model

- Understanding Cassandra data model (keyspaces, tables, rows, columns)
- Data distribution and replication strategies
- Designing tables for optimal performance

Cassandra Query Language (CQL)

- Introduction to CQL syntax and commands
- CRUD operations (Create, Read, Update, Delete)
- Batch operations and atomicity

Data Consistency and Replication

- Consistency levels in Cassandra
- Understanding replication strategies (SimpleStrategy, NetworkTopologyStrategy)
- Configuring replication factors
- Handling consistency and availability trade-offs

Cassandra Architecture Internals

- Understanding Cassandra's distributed architecture
- Gossip protocol and node discovery
- Read and write paths in Cassandra
- Compaction and storage engine internals

Monitoring and Performance Tuning

- Monitoring Cassandra clusters (nodetool, JMX)
- Metrics and monitoring tools (DataStax OpsCenter, Prometheus)
- Identifying and troubleshooting performance bottlenecks
- Tuning JVM settings for Cassandra

Backup and Restore Strategies

- Backup methods (nodetool snapshot, incremental backups)
- Setting up and configuring backups
- Restore procedures and disaster recovery

Security in Apache Cassandra

- Authentication and authorization mechanisms
- Configuring SSL for encryption
- Hardening Cassandra clusters
- Best practices for securing data

Advanced Topic

- Understanding multi-datacenter setups
- Working with Cassandra drivers (Java, Python, etc.)
- Using Cassandra with Apache Spark for analytics
- Upgrading Cassandra clusters