

## Apache Cassandra

### Workshop Details:

<b>Duration:</b>	3 Days
<b>Objective:</b>	To learn Cassandra in depth and use it effectively to query Cassandra Cluster
<b>Participants' Entry Profile:</b>	<ul style="list-style-type: none"> <li>▪ Must know RDBMS concepts</li> <li>▪ Have worked on any RDBMS Product</li> </ul>
<b>Training Methodology:</b>	<p>The workshop will follow Synergetics methodology of</p> <ul style="list-style-type: none"> <li>Concept Visualization</li> <li>Active Experimentation</li> <li>Application Development</li> </ul> <p>The workshop will be 100% Hands-On with each participant having access to system during the session</p>

### Setup Requirements

<b>Hardware and Software Requirements:</b>	<p>Participant's as well as Trainer's Machine are required to have :</p> <p><b>Participant's as well as Trainer's Machine are required to have :</b></p> <p><b>Hardware / Software</b></p> <ul style="list-style-type: none"> <li>▪ Intel® Core™2 Duo Processor</li> <li>▪ 4 GB RAM minimum</li> <li>▪ 100 GB free in the hard disk</li> </ul> <p><b>Development tools and SDK</b></p> <ul style="list-style-type: none"> <li>▪ Apache Cassandra 2.0</li> </ul>
<b>Training Lab Requirements:</b>	<p>Whiteboard 6 feet by 4 feet (minimum)</p> <p>Whiteboard markers – Red, Blue, Green, Black</p> <p>Video Projector (1024 X 768 resolutions)</p>

## Course Content

<b>Day 1</b>	<ul style="list-style-type: none"> <li>➤ <b>Introduction to NoSQL</b> <ul style="list-style-type: none"> <li>■ Problem with RDBMS</li> <li>■ What is NoSQL Database</li> <li>■ Why NoSQL</li> </ul> </li> <li>➤ <b>Introduction to Cassandra</b> <ul style="list-style-type: none"> <li>■ What is Cassandra</li> <li>■ Features of Cassandra.</li> </ul> </li> <li>➤ <b>Getting Started</b> <ul style="list-style-type: none"> <li>■ Running Cassandra Shell</li> <li>■ Running CQL</li> <li>■ CRUD Operation on Cassandra Database</li> </ul> </li> <li>➤ <b>Cassandra Architecture</b> <ul style="list-style-type: none"> <li>■ Internode Communication</li> <li>■ Data Distribution and Replication</li> <li>■ Partitioners</li> <li>■ Snitches</li> <li>■ Client Requests <ul style="list-style-type: none"> <li>○ Write Request</li> <li>○ Multiple datacenter write request</li> <li>○ Read request</li> </ul> </li> </ul> </li> </ul>
<b>Day 2</b>	<ul style="list-style-type: none"> <li>➤ <b>Database Internals</b> <ul style="list-style-type: none"> <li>■ Managing Data</li> <li>■ Cassandra Storage basics</li> <li>■ About Inserts and Updates</li> <li>■ About deletes</li> <li>■ Hinted HandOff writes</li> <li>■ Reads</li> <li>■ Transaction and concurrency control</li> <li>■ Configuring data consistency</li> <li>■ Schema Changes</li> </ul> </li> <li>➤ <b>Configuration</b> <ul style="list-style-type: none"> <li>■ The Configuration file</li> <li>■ Configuring the Heap Dump directory</li> <li>■ Generating Tokens</li> <li>■ Configuring virtual nodes</li> <li>■ Logging Configuration</li> <li>■ Commit Log Archive Configuration</li> </ul> </li> </ul>
<b>Day 3</b>	<ul style="list-style-type: none"> <li>➤ <b>Working with CQL 3</b> <ul style="list-style-type: none"> <li>■ Creating Keyspaces</li> <li>■ Working with Tables</li> <li>■ Querying Data from table</li> <li>■ Adding columns altering metadata</li> <li>■ Compound keys and clustering</li> <li>■ Querying system tables</li> <li>■ Time to live</li> <li>■ Query write time</li> <li>■ Working with sets</li> </ul> </li> </ul>

	<ul style="list-style-type: none"><li>■ Working with Lists</li><li>■ Working Maps</li><li>■ Batches</li><li>■ Database Design for Social Bookmarking site (Assignment)</li></ul>
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