MySQL Cluster
Features & Roadmap

John David Duncan
MySQL, AB

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MySQL Cluster
is MySQL + NDB
MySQL Cluster 4.1.10a

A milestone release...

• Easy-to-install binaries and RPMs
• Improved documentation
• Improved stability & performance since 4.1.3
• BLOBs
• Well-understood limitations
• "Cluster Jumpstart" program
MySQL 5.0.3

• MySQL Cluster merged into 5.0 tree
• Push-down of WHERE clauses
• Improved space-efficiency
• Speed optimizations
• Compatible with Query Cache
Condition Push-down

SELECT * FROM my_table where non_indexed_column = 42

Before
Full table scan at every NDB node
Every row of table sent up to MySQL
WHERE clause is evaluated in the MySQL Server

After
WHERE clause "pushed down" into NDB Cluster
Only matching rows are sent to the MySQL server
Space Efficiency
(less overhead)

- Less per-table & per-server overhead in 4.1.10
- Less use of IndexMemory in 5.0
- > 1600 tables in a cluster in 5.0
Other Optimizations in 5.0

- Compatible with Query Cache

- Batched key lookups
  
  ```sql
  SELECT * from my_table where key1 in (1,3,4,6,8,10,19)
  ```

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>lookups sent to NDB one at a time</td>
<td>all lookups sent to NDB in one batch</td>
</tr>
</tbody>
</table>
MySQL Cluster 5.1

Q1 2006

- Integration of MySQL Cluster with MySQL Replication
- Partitioning
- Non-indexed attributes stored on disk
- Variable-length records
  e.g. VARCHAR(200)
- Online schema & cluster changes
Global Replication

West Coast Cluster

MySQL

Replicator

NDB

Sync

East Cost Cluster

MySQL

Replicator

NDB

Async

MySQL

MySQL

NDB

NDB

Sync

MySQL

MySQL

NDB

NDB
Partitioning in MySQL 5.1

- Better than MERGE tables
- Supports all storage engines
- PARTITION BY range, hash, list, or key
- Builds a foundation for parallel query execution
Who is using MySQL Cluster?

- B2: IP address management
- SwissCom: traffic on highways
- MiniClip: high scores