



What's New in MySQL Cluster 7.2?

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Yves Trudeau

Percona Inc

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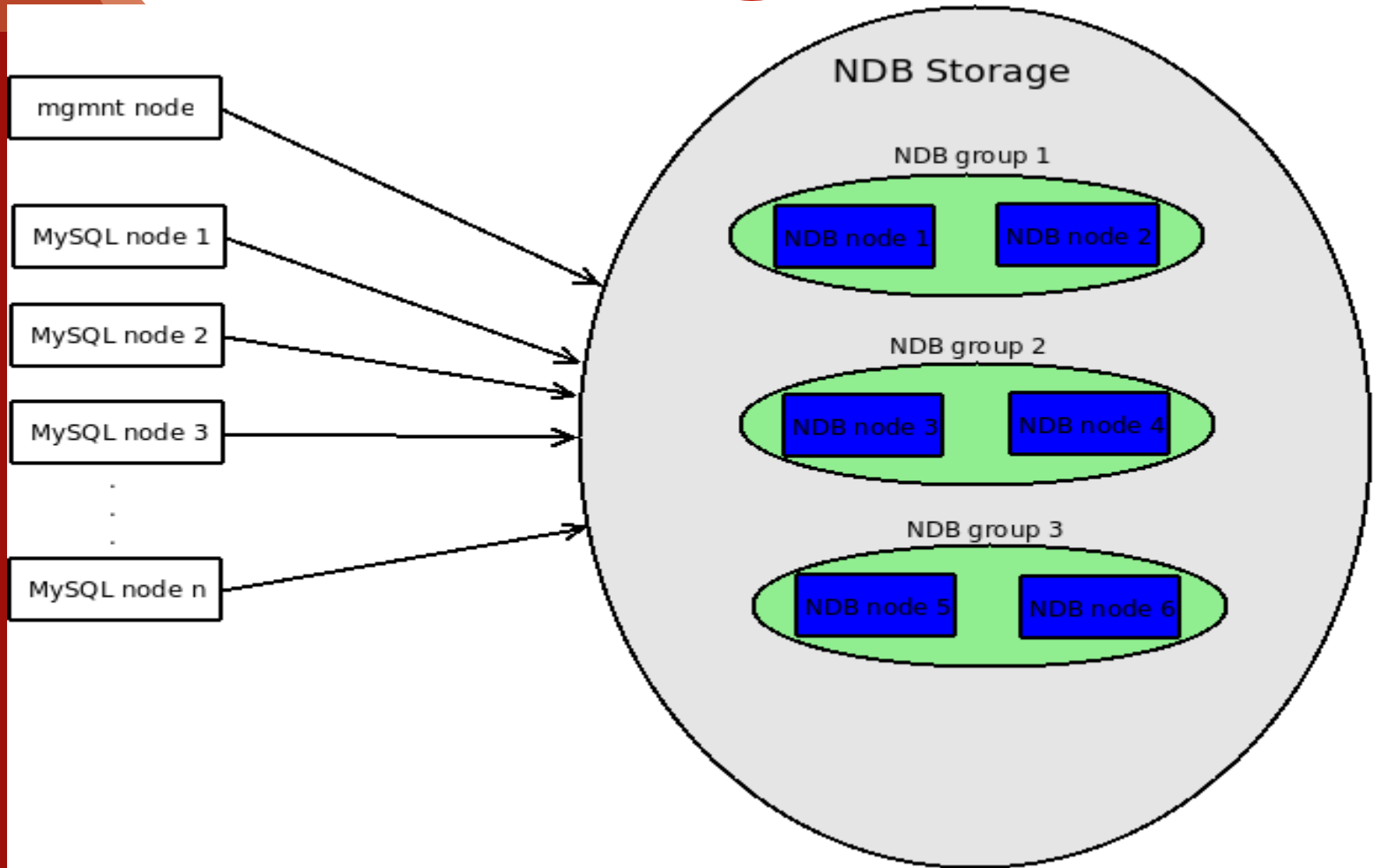
About Me



- <http://www.percona.com>
- <http://www.mysqlperformanceblog.com/>
- <http://www.bigdbahead.com>

Yves Trudeau, Ph.D.
Principal Consultant

NDB Architecture



So, you have tried 5.0.x?



5.0.x



5.1.x

NDB evolution



Since 5.1

- Disk based tables
- Variable size columns in memory
- Custom partitioning
- Online add and drop index
- Replication
- Schema auto discovery

NDB evolution



Since 6.1

- Larger clusters (more nodes)

Since 6.2

- NDB connection pools for MySQL
- Online add column

NDB evolution



Since 6.3

- Compress backup and LCP
- Distribution awareness
- Realtime extensions

NDB evolution



Since 7.0.x

- Compress backup and LCP
- Distribution awareness
- Realtime extensions

NDB evolution



Since 7.1.x

- Ndbinfo schema
- Windows supports

Since 7.2.x:

- Joins pushdown
- MySQL privileges in NDB

NDB evolution



Coming:

- More distributed operations (join types and aggregations)
- Tables replica across nodes
- NDB optimizer stats
- BKA support

Why would you use NDB?

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- HA
- Performance
- Sharding
- NoSQL

Sharding, what NDB gives you?

-13-



- Distribution awareness
- Scalable with online repartitioning
- Aggregation across partitions
- Cross nodes joins and transactions
- Consistent backup and restore
- Consistent replication

NDB for NoSQL



- As fast as memcached
- Memcached to NDB plugin
- Data can also be accessed by SQL
- Transactions
- Persistence, backups, replication, HA (all for granted!)

NDB gotchas



- Ordered index updates limit performance
- Tuning required for schema, queries, application
- `records_in_range` call returns 10 (hint required)
- Large unbounded joins are slow (nested loops)
- Read-committed **ONLY**

Join pushdown



How MySQL executes joins (without pushdown)?

```
SELECT e.name, d.deptName, e2.managerName,  
t.titleName FROM employee e INNER JOIN employe e2  
ON e.managerId = e2.Id INNER JOIN dept d ON  
e.deptId = d.Id INNER JOIN title t ON e.titleId =  
t.Id
```

1. get row e from employee
2. get row from e2 where e2.id = e.managerId
3. get row from d where d.Id = e.deptId
4. get row from t where t.Id = e.titleId
5. output results
6. goto 1.

Join pushdown



How MySQL executes join (with pushdowns)

- Well... the joins are handles by the data nodes, in parallel
- Join performance scale with number of data nodes
- Less network hops -> schema tuning important
- A leap forward in term of join performance (up to 20x)

Join pushdown



Limitations:

- Only eq_ref and const
- No data type conversion
- No blob columns
- No locks

Questions



Questions?

Yves Trudeau: yves@percona.com

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