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Neo4j - query performance degradation

asked 4 months ago

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Here is my query:

1

```
MATCH (p:Publisher)-[r:PUBLISHED]->(w:Woka)-[s:AUTHORED]-(a:Author)
MATCH (l:Language)-[t:USED]->(w:Woka)
WHERE (a.author_name =~ '.*Camus.*' and a.author_name =~ '.*Albert.*')
RETURN p.publisher_name, w.woka_title, a.author_name, l.language_name;
```

The first time this is executing the result is returned in 3.8 seconds. For the second execution couple minutes later the result is returned in 15.1 seconds. The more I am executing the longer the response time. For the third execution the response time is increasing and several moments later I am getting the results between 30 and 90 seconds.

I am the only user of this (development) database. No data is added or deleted or changed there. No indexes are dropped or created also there. When closing two out of three connections to the database the response time goes back to 15 seconds.

Memory is set 4GB as init and max up to 8GB. Server has 16GB total memory.

What is happening here? Why the response time differs so much?

neo4j cypher

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edited Apr 14 at 22:10



Michael Hunger
25.2k ● 2 ● 21 ● 41

asked Apr 14 at 22:05



LDB
264 ● 8

How do you execute your queries? – Michael Hunger Apr 14 at 22:09

using the neo4j-shell. – LDB Apr 14 at 22:10

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2 Answers

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2

How big is your graph? Could be that it allocates a lot of heap for caching and then there is not enough space for running the queries without garbage collection.

I presume your relationships are all 1:n, if not add a `WITH distinct p,w,a` in between the two matches.

Your query is also suboptimal, and will probably create a lot of intermediate results, you can use `PROFILE` to look at the query plan.

Try this:

```
PROFILE
MATCH (a:Author)
WHERE (a.author_name =~ '.*Camus.*' and a.author_name =~ '.*Albert.*')
MATCH (p:Publisher)-[:PUBLISHED]->(w:Woka)-[:AUTHORED]-(a)
MATCH (l:Language)-[:USED]->(w:Woka)
RETURN p.publisher_name, w.woka_title, a.author_name, l.language_name;
```

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answered Apr 14 at 22:14



Michael Hunger
25.2k ● 2 ● 21 ● 41

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Trying your suggested query and here are the results. Same number of rows returned: 247 rows Same response time around 15-16 seconds: 16838 ms Compiler CYPHER 2.2 Total database accesses: 2068797 Planner COST Projection | +Filter(0) | +Expand(All)(0) | +Filter(1) | +Expand(All)(1) | +Filter(2) | +Expand(All)(2) | +Filter(3) | +NodeByLabelScan - [LDB](#) Apr 15 at 13:58

More details, here are the indexes: Indexes ON :Author(author_id) ONLINE ON :Author(author_name) ONLINE ON :Language(language_id) ONLINE ON :Language(language_name) ONLINE ON :Publisher(publisher_id) ONLINE ON :Publisher(publisher_name) ONLINE ON :Woka(woka_id) ONLINE ON :Woka(author_id) ONLINE ON :Woka(publisher_id) ONLINE ON :Woka(language_id) ONLINE ON :Woka(woka_title) ONLINE No constraints - [LDB](#) Apr 15 at 14:00

```
neo4j-sh (?)$ MATCH (n:Author) return count(n); +-----+ | count(n) | +-----+ | 4136805 | +-----+ 1
row 3643 ms - LDB Apr 15 at 14:00
```

```
neo4j-sh (?)$ MATCH (n:Publisher) return count(n); +-----+ | count(n) | +-----+ | 202255 | +-----+ 1
row 358 ms - LDB Apr 15 at 14:01
```

```
neo4j-sh (?)$ MATCH (n:Language) return count(n); +-----+ | count(n) | +-----+ | 274 | +-----+ 1
row 42 ms - LDB Apr 15 at 14:01
```

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0 I borrowed from other solutions and I changed the params as following in the file conf/neo4j.properties (server restarted after that):

```
neostore.nodestore.db.mapped_memory=512M
neostore.relationshipstore.db.mapped_memory=512M
neostore.propertystore.db.mapped_memory=512M
neostore.propertystore.db.strings.mapped_memory=512M
neostore.propertystore.db.arrays.mapped_memory=512M
```

The results are now returning, in average, 300% faster narrowing the time from 90 seconds to 30 seconds and I am not getting disconnected anymore from the web interface to the database.

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answered Apr 15 at 16:51



[LDB](#)
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