



MySQL and Redis

Exploring Infrastructure Level Database Software

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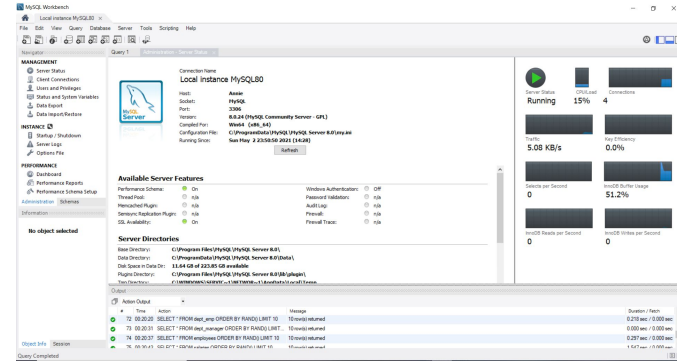


History

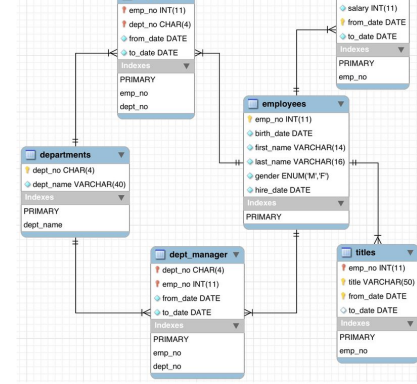
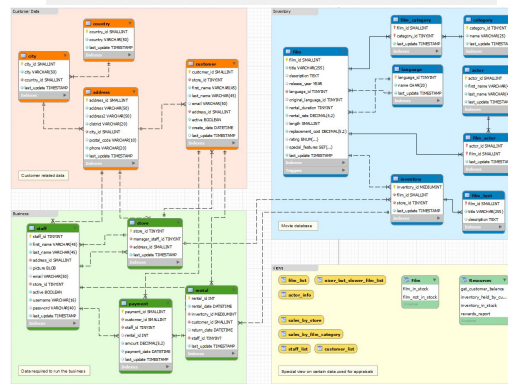
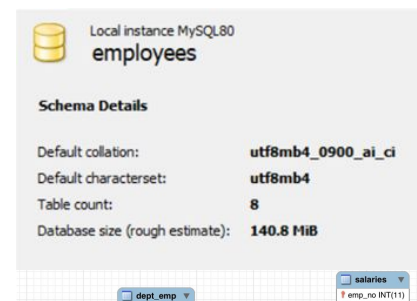
- MySQL was initially released in 1995 while Redis was released in 2009
- MySQL uses a “relational” approach while Redis uses a “non-relational or NoSQL” approach
- Both are used to support major companies with Redis taking over support for many of MySQL’s users
- Both are open source
- Both value the platforms that make use of their software
- Redis’ “Hello World” was called “Retwis” a clone of Twitter which was originally hosted by MySQL
- While both software can be used together for even greater results, many choose to compare the software separately

MySQL Setup and Experience

- Overall a relatively simple database hosting platform to set up
- Uses relational databases
- Provides visual diagrams of the database schema
- Can host multiple servers at a time
- Has performance analysis tools on board through MySQL Workbench
- Also has an area to write scripts for the database which can also be saved

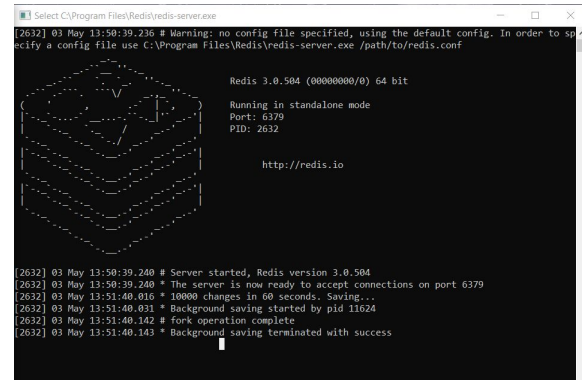


- Compared the Sakila Database to the Employees database
- Both provided by MySQL for testing and learning
- Employees substantially larger to show how workload affects operations
- Both were well optimized



Redis Setup and Experience

- Uses non-relational databases
- Relatively easy to install
- Not supported by windows
- Simple to use but hard to visualize given non-relational databases
- Not particularly difficult to use as a hosting platform but hard to design for



```
Select C:\Program Files\Redis\redis-server.exe
[2632] 03 May 13:50:39.236 # Warning: no config file specified, using the default config. In order to specify a config file use C:\Program Files\Redis\redis-server.exe /path/to/redis.conf

Redis 3.0.504 (00000000/0) 64 bit
Running in standalone mode
Port: 6379
PID: 2632

http://redis.io

[2632] 03 May 13:50:39.240 # Server started, Redis version 3.0.504
[2632] 03 May 13:50:39.240 * The server is now ready to accept connections on port 6379
[2632] 03 May 13:51:40.016 * 10000 changes in 60 seconds. Saving...
[2632] 03 May 13:51:40.031 * Background saving started by pid 11624
[2632] 03 May 13:51:40.142 # fork operation complete
[2632] 03 May 13:51:40.143 * Background saving terminated with success
```

Redis Analysis

- Timing scaled slightly better for larger databases
- Slightly more difficult to view “expensive” operations
- Both were well optimized
- Could see where issues could arise but none present in tested databases
- Compared the Retwis database to the Openbeer database
- Retwis substantially smaller, more of a proof of concept than a full fledged database

SEARCHbeerIdx

Execute Query

Use Shift+Enter to format your query in multiple lines

FT.SEARCH beerIdx: "#category:Irish Ale[German Ale #abv:[9 inf]]"

Doc	brewery	breweryid	name	category	categoryid	style	styleid	abv	ibu
beer:3990	Clipper City Brewing Co.	385	Hang Ten	German Ale	4	German-Style...	55	10	0
beer:1934	Tildtown Brewing	1268	Weizen Bock	German Ale	4	German-Style...	55	10	0
beer:5633	Deschutes Brewery	441	Black Butte XXX	Irish Ale	2	Porter	25	11	0

Total Documents Matched: 3



Comparison

- Both software are capable for any small project
- Redis can be a bit tricky but is more rewarding in the long run
- MySQL is more forgiving and conceptually easy to understand due to its use of a schema rather than a non-relational database
- Redis appears slightly more ambitious in its development as while it can coexist with MySQL it built its platform on taking over or targeting MySQL users



Pitfalls in Relational Design

- Selecting more data than needed
- Inefficient joins between tables
- Too few or too many indexes
- Too much literal SQL causing parse contention
- Overall PC usage/ network usage
- User and query conflicts



Pitfalls in Non-Relational Design

- Complexity can become an issue
- Consistent JOINS
- The lack of structure can be problematic
- Collaboration can be tricky



Our Review - Which fits your project?

- MySQL and Redis are effectively as efficient for smaller projects
- MySQL is less complex and more conceptually easy to understand
- Redis scales more efficiently
- Redis can be more complex especially when collaborating
- Both are suitable for almost any size project
- Both are open source
- MySQL appears to have more documentation and guides online