

Saturday, 14 September 2024

Isha Load Test Report (Preliminary: to be reverified)

System Config

- Postgres version 16.4
 - AppServer: c6a.2xlarge
 - PostgresServer: c7g.4xlarge
 - TestingK6Server: c6a.4xlarge
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Test systems

- Go-Gin
 - FastAPI
 - Litestar
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Test Cases

- **Test1:** Reads a sample form JSON from Redis cache, modifies it by filling default values (as would happen for pre-filled forms), and returns the updated JSON. This is used by the `GetFormAPI`.
 - **Test2:** Takes a JSON request, queries the database, updates some data, and returns 100 rows as a JSON response. This process is used by APIs like `UpdateAPI`, `GetSubmissions`, and `GetMyPrograms`.
 - **Test3:** Takes a request, validates it by querying the database, writes a row to the database, and returns a success response. This is the process used by the `Submit API`.
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Tables Config

- Read Table (100K rows) (15 columns with 1 JSON column) (Test 1, 2 & 3)
- Write Table (10K rows) (10 columns with 1 JSON column) (Test 3)

Test Methodology

- We have used K6 to test the system.
- All systems used similar numbers of pooling connections to ensure test integrity.
- There are optimisations possible in both python & go, however this test is with the purpose of providing a ratio of performance for decently optimised code.
- Source Code: https://github.com/Kakshillsha/load_tests

Test Results

Test1: Read, modify, and return form JSON

Platform	100 VAU req/s	1000 VAU req/s	Error rate
Gin-Go	754	743	0.0
Litestar-Python	2625	2272	0.0
FastAPI-Python	819	713	0.0

Test2: Query DB, update, return 100 rows as JSON

Platform	100 VAU req/s	1000 VAU req/s	Error rate
Gin-Go	1713	1651	0.0
Litestar-Python	2668	2251	0.0
FastAPI-Python	378 *	353*	0.0

Test3: Validate, write to DB, return success

Platform	100 VAU req/s	1000 VAU req/s	Error rate
Gin-Go	620	611	0.00
Litestar-Python	620	608	0.00
FastAPI-Python	620	618	0.00