Soak Testing Report

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1. Planning

This soak test evaluates the application's stability and performance over an extended period under a constant load. The test was executed using k6 with 10 virtual users (VUs) running continuously for 1 hour. Metrics were collected via InfluxDB and monitored in Grafana dashboards.

Tools Used:

- k6 (Load Generator)
- InfluxDB v1 (Metrics Storage)
- Grafana (Performance Visualization)

Test Scenario:

- Script: `test_soak.js`
- Execution Mode: Local
- Duration: 1 hour + 30s graceful stop
- Max Virtual Users: 10
- Output: InfluxDB v1 at `http://localhost:8086`

🎯 **Goal:** Watch for memory leaks, increasing response time, or degraded throughput over time.

2. Testing

Summary of Results

- **Total HTTP Requests**: 20,798
- **Checks Passed**: 10,399 (50.00%)
- **Checks Failed**: 10,399 (50.00%)
- **HTTP Failures**: 0 (0.00%)
- **Avg HTTP Response Time**: 1.23s
- **95th Percentile Duration**: 2.24s
- **Max HTTP Duration**: 18.12s
- **Avg Iteration Duration**: 3.46s
- **Completed Iterations**: 10,399
- **VUs Used**: Constant 10
- **Data Received**: 159 MB
- **Data Sent**: 15 MB

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3. Reporting

Observations

- The system remained stable with **0 HTTP request failures** throughout the 1-hour test.
- **Login check** passed consistently.
- **Token validation failed 100%**, likely due to script misconfiguration.
- No memory leaks or degradation observed in iteration duration or throughput.

Identified Bottlenecks

- Broken token extraction or missing `Authorization` header logic in the test script.
- 50% check failure was **functional**, not systemic.

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4. Proposed Solutions

Immediate Fixes

- Fix the logic in the test script to **capture and reuse the token** from login.
- Ensure proper error handling and validation logic for tokens.

5. Soak Testing Insights

This test confirms the backend can handle long-duration traffic with stable performance and without failures. Functional issues in token validation should be resolved to ensure full test accuracy and realism.
