A COMPARATIVE ANALYSIS OF WEBSOCKETS

websockets vs autobahn-ws

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Outline

- Introduction: Purpose and Objectives
- Choosing websockets and autobahn-ws
- Metrics and Evaluation Criteria
- Analysis and Findings

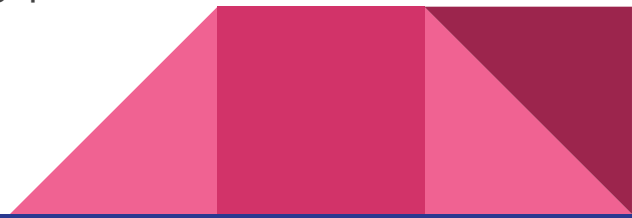
Introduction: Purpose and Objectives

- Evaluation of two widely used WebSocket libraries.
- Conducted on MacBook Pro M1 Max with 32GB RAM.
- Utilized Docker with resource constraints: 1 CPU, 1GB RAM.

Choosing websockets and autobahn-ws

- websockets:
  - Strong community (5k stars)
  - Correctness and simplicity
  - Supports various WebSocket protocol versions and offers robust error handling.
  - Built on top of asyncio

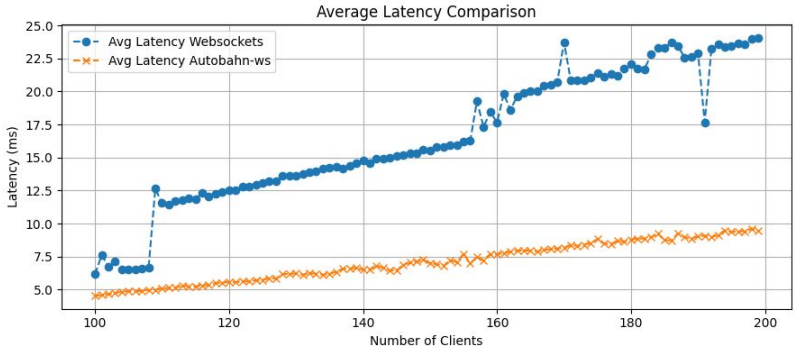
- autobahn-ws:
  - Strong community (2.5k stars)
  - Performance optimization
  - Suitable for applications requiring low latency and high throughput.
  - Built on top of asyncio (it also has twisted version)

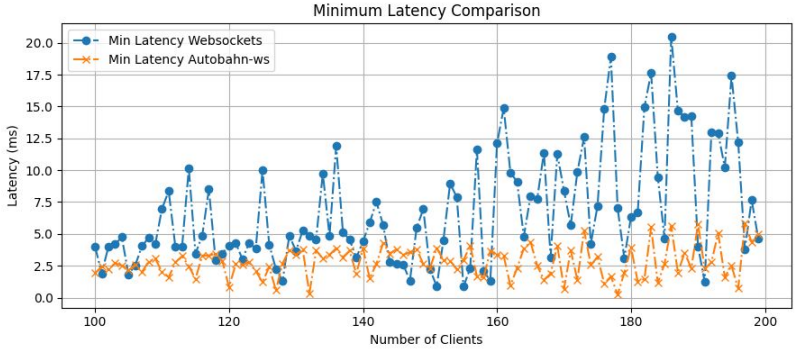


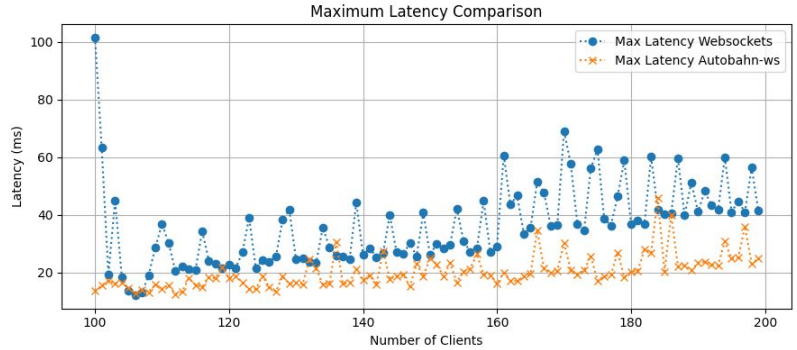
Metrics and Evaluation Criteria

- Latency Metrics Comparison
  - Average Latency: average time taken for messages to travel
  - Minimum Latency: lowest recorded
  - Maximum Latency: highest recorded

- Throughput Metrics Comparison
  - Overall Throughput: successfully transmitted messages over the ws connection.
  - Throughput per Client



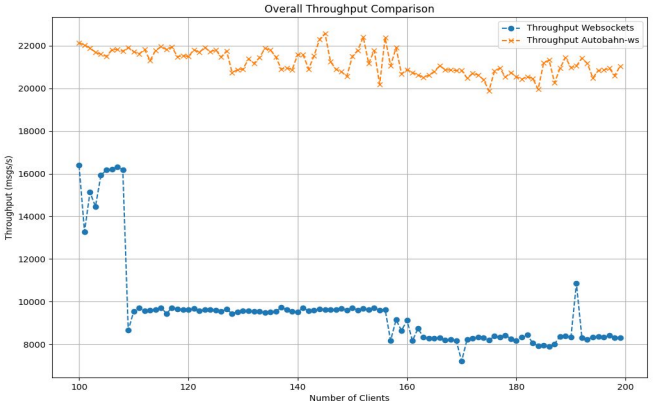


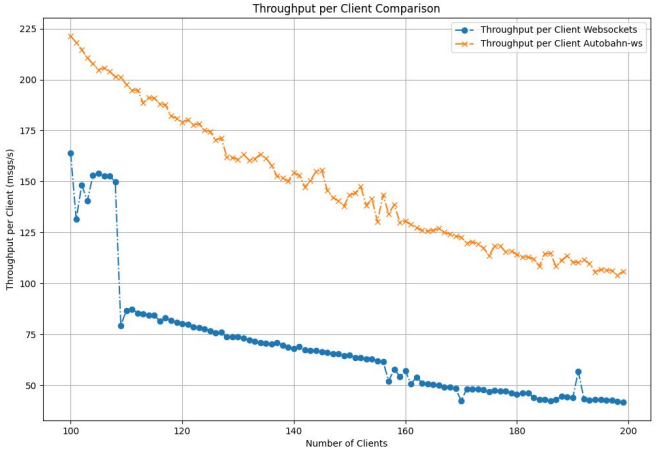


Analysis and Findings: Latency

- **Average Latency:** autobahn is performing more stable and better in average.
- **Minimum Latency:** the value and volatility of websockets is worse than autobahn
- **Maximum Latency:** autobahn is performing better in maximum values.

Conclusion: *websockets has higher latency compared to autobahn*





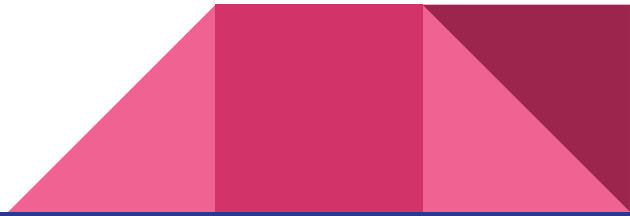
Analysis and Findings: Throughput

- **Overall Throughput:** autobahn performs higher overall throughput.
- **Throughput per Client:** autobahn delivers higher throughput per client

Conclusion: *autobahn has higher throughput performance*

Final

For applications prioritizing low latency and high throughput, Autobahn-ws is recommended over Websockets.



Thank you!