

# Grizzly-thrift Benchmarking

## Grizzly-Thrift Server/Client Modules Benchmarking

This page is for benchmarking various Thrift Server-Client modules which are TSocketServer/Client, TThreadPoolServer, TNonblockingServer, Netty Server/Client and Grizzly Server/Client. I used business operations based on Thrift tutorial for test but modified a bit logic for packet size.

### Test Information

- Server Type/Client Type: TServer-TSocketClient vs TServer-NettyClient vs TServer-GrizzlyClient vs GrizzlyServer-TSocketClient vs GrizzlyServer-GrizzlyClient vs etc...
- Message Size: About 3M Bytes, 3K Bytes, 300 Bytes
- Thrift Protocol: Binary, Compact
- Client Connections: 40, 20, 60
- Test Machine Information
  - CPU: Intel Xeon 3.3G, 7 Processor
  - Memory: 16G
  - OS: Linux CentOS
  - JDK: 1.6.0\_29
  - Network: 1G
  - Versions: Thrift v0.7.0, Grizzly v2.2([git://java.net/grizzly~git](https://github.com/java.net/grizzly)), Netty v4.0.0([git://github.com/netty/netty.git](https://github.com/netty/netty)), Netty Tools v1.2.8([https://github.com/cgbystrom/netty-tools.git](https://github.com/cgbystrom/netty-tools)). Most of all are the latest version(2011/12/05).
- Scenario
  - After 1min warming-up, testing 5min and collecting total results.
  - Please see the sources which I attached.
    - ThriftServerBenchmark.java: Server modules for benchmarking
    - ThriftClientBenchmark.java: Client modules for benchmarking
    - CalculatorHandler.java: Business logic for Thrift services

### Benchmarking Results

- 3M + Compact + 40 Connections

Server Types	TSocket Client	Netty Client	Grizzly Client
TServer	8,637	<b>478</b>	8,510
TThreadPoolServer	11,221	2,273	11,220
TNonblockingServer	11,223	1,832	11,221
Netty	11,220	2,311	11,220
Grizzly	11,221	1,765	<b>11,225</b>

- Netty client had the performance problem, so I would exclude it for next benchmarking.
- 3M + Binary + 40 Connections

Server Types	TSocket Client	Grizzly Client
TThreadPoolServer	11,219	11,215
TNonblockingServer	11,221	11,221
Netty	11,213	11,221
Grizzly	11,220	<b>11,222</b>

In 3M test, Compact/Binary and Server/Client tests were meaningless for performance.

- 3K + Compact + 40 Connections

Server Types	Grizzly Client
TThreadPoolServer	8,283,705

TNonblockingServer	5,801,319
Netty	<b>9,058,550</b>
Grizzly	<b>8,964,358</b>
Grizzly(SameIO)	<b><u>9,081,152</u></b>

- TNonblockingServer had the performance problem. And Netty and Grizzlys' results were better than Thrift server modules'.
- 3K + Binary + 40 Connections

Server Types	TSocket Client	Grizzly Client
TThreadPoolServer	7,619,693	8,163,692
TNonblockingServer	5,444,630	6,032,290
Netty	8,254,168	<b>8,930,896</b>
Grizzly	8,204,097	<b>8,833,978</b>
Grizzly(SameIO)	8,257,918	<b><u>8,960,497</u></b>

- Grizzly client module had better performance than TSocket client so I would use only Grizzly client for next benchmarking.

In 3K test, Compact protocol is better than Binary protocol. And Netty and Grizzlys' results were better than Thrift server modules' so I would use only Netty and Grizzly server for next benchmarking.

- 300Bytes + Compact + 40 Connections

Server Types	Grizzly Client
Netty	14,569,820
Grizzly	13,674,641
Grizzly(SameIO)	<b><u>14,770,452</u></b>

- 300Bytes + Compact + 20 Connections

Server Types	Grizzly Client
Netty	10,269,876
Grizzly	9,654,216
Grizzly(SameIO)	<b><u>10,349,440</u></b>

- 300Bytes + Compact + 60 Connections

Server Types	Grizzly Client
Netty	15,783,774
Grizzly	15,227,426
Grizzly(SameIO)	<b><u>15,962,425</u></b>

## Conclusion

- Results of 300Bytes + Compact + 40 Connections

Server Types	TSocket Client	Netty Client	Grizzly Client
TServer	741,417		604,558
TThreadPoolServer	14,731,560		12,747,230
TNonblockingServer	6,060,111		6,723,402
Netty	14,749,519		14,569,820

Grizzly(SameIO)	<b>14,931,745</b>	9,066,525	<b>14,770,452</b>
-----------------	-------------------	-----------	-------------------

- Results of 3KBytes + Compact + 40 Connections

Server Types	TSocket Client	Netty Client	Grizzly Client
TServer	631,300		526,341
TThreadPoolServer	7,708,088		8,283,705
TNonblockingServer	5,264,995		5,801,319
Netty	8,372,804		9,058,550
Grizzly(SameIO)	8,381,352	3,718,431	<b>9,081,152</b>

- Server Module
  - Grizzly Same IO Strategy is best.
- Client Module
  - In small packets, TSocket is best. In target packet, Grizzly client is best.
- Thrift Protocol
  - In this scenario, Compact protocol is best.