BattleMesh v6 Tests

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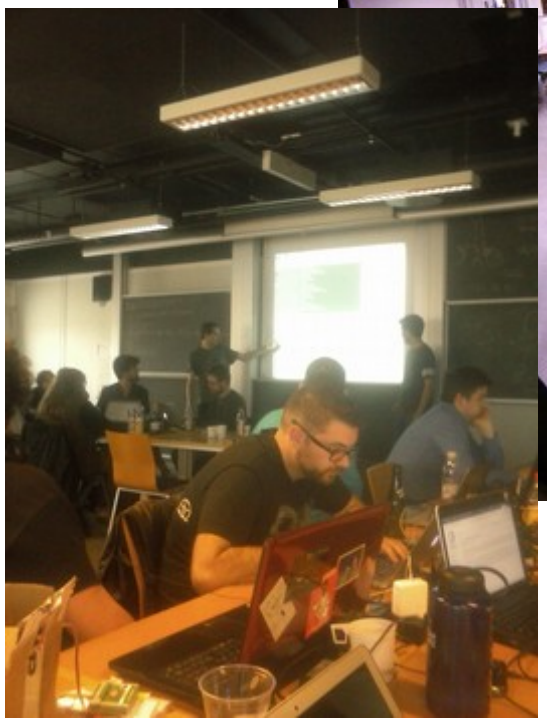
Wireless BattleMesh v7 Leipzig

BattleMesh v6

- 2013, Aalborg, Denmark
  - http://vimeo.com/87030048



A Tester Perspective

- Big difference between planned and actual tests
  - It's quite easy to design fancy network topologies on paper but the real World is different (plugs, walls, ...).
  - If somebody has a good extemporary idea for a test, why not?
- Quality data collection is not trivial
  - Which data is really needed for post-processing?
  - Output format?
  - Just dump everything?
  - Good test documentation
- Serial vs. Parallel
  - The conditions of the network might change if the tests are ran in sequence
  - The routing protocols might interfere with each other if the tests are ran altogether

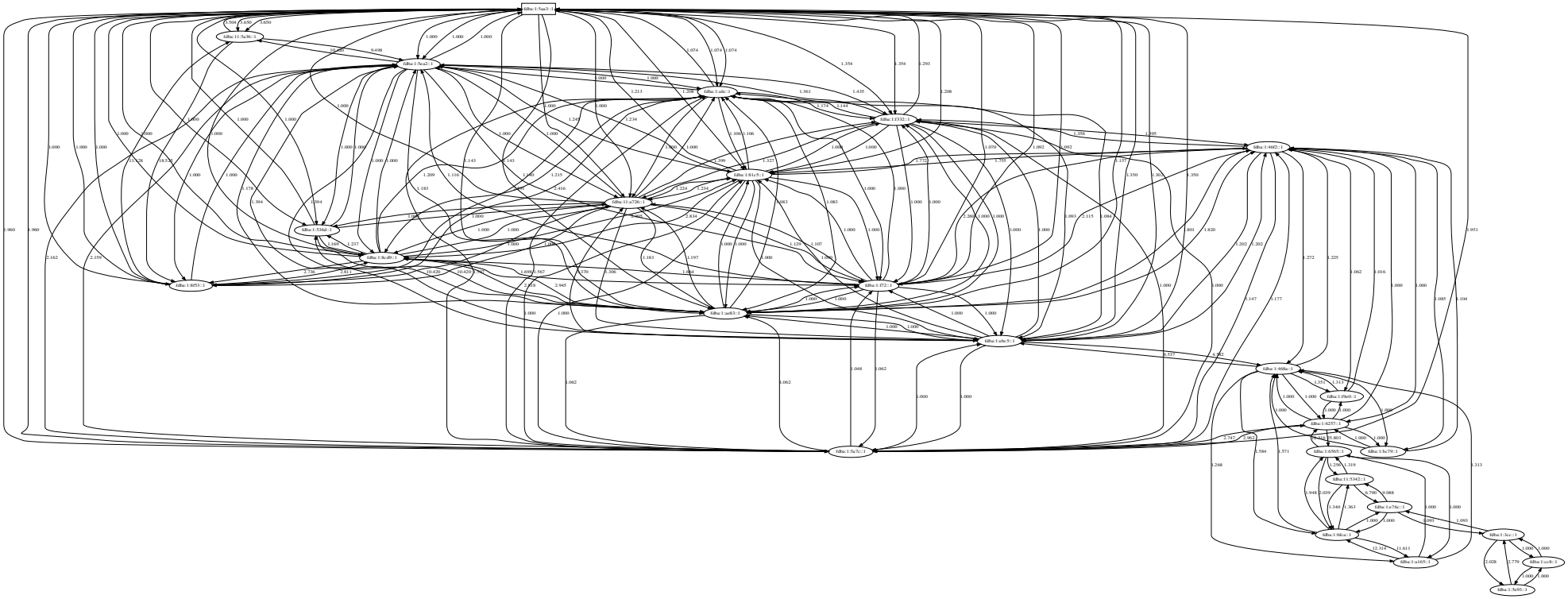
Test Overview

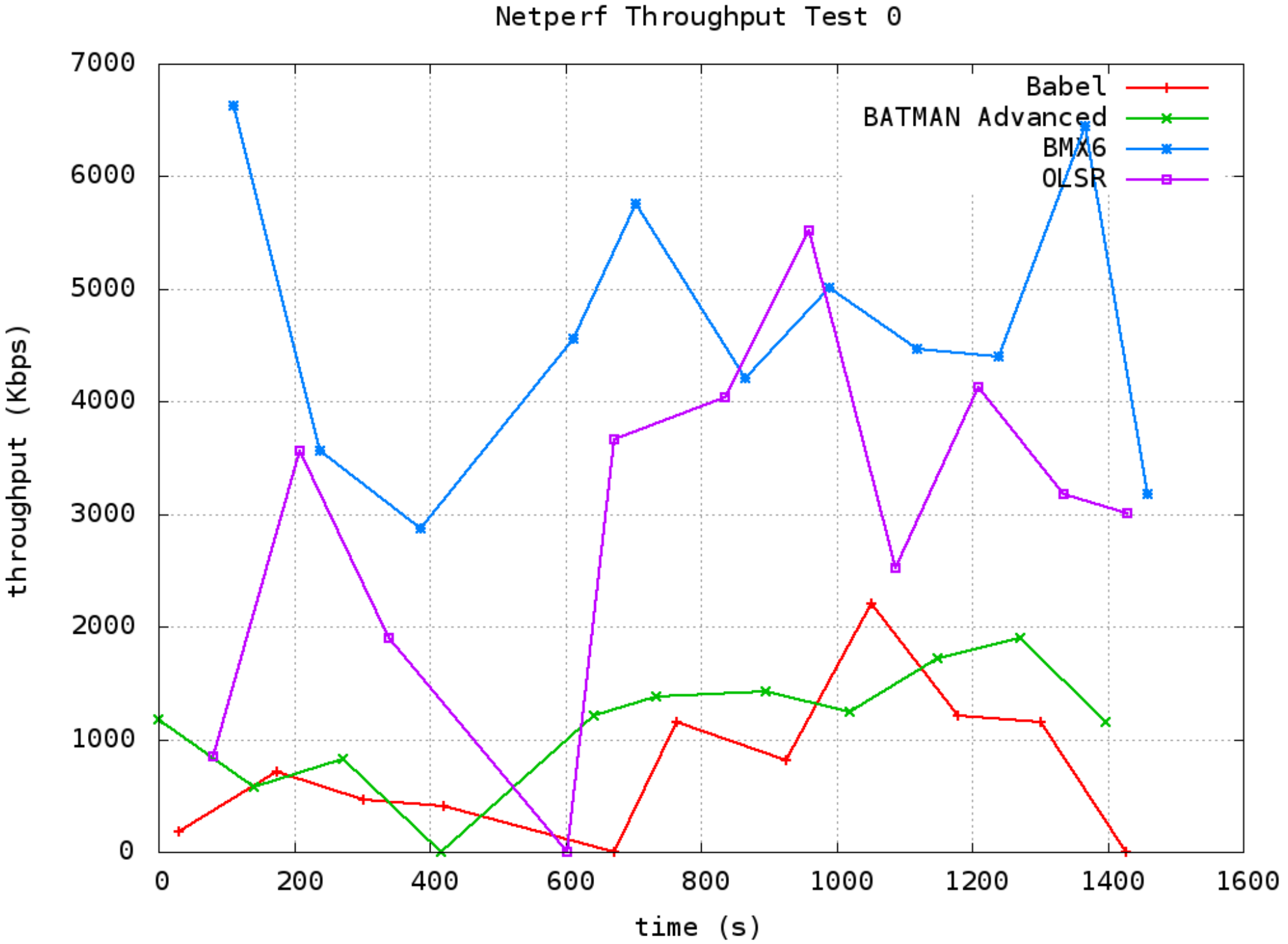
- Testbed walkthrough
  https://www.youtube.com/watch?v=P2Aqeqy9pw4
- ~30 nodes, running all protocols at the same time on different IPv6 address spaces
- Output format: shell logs
- Not so good test documentation

- **Are the test still scientifically valid?**

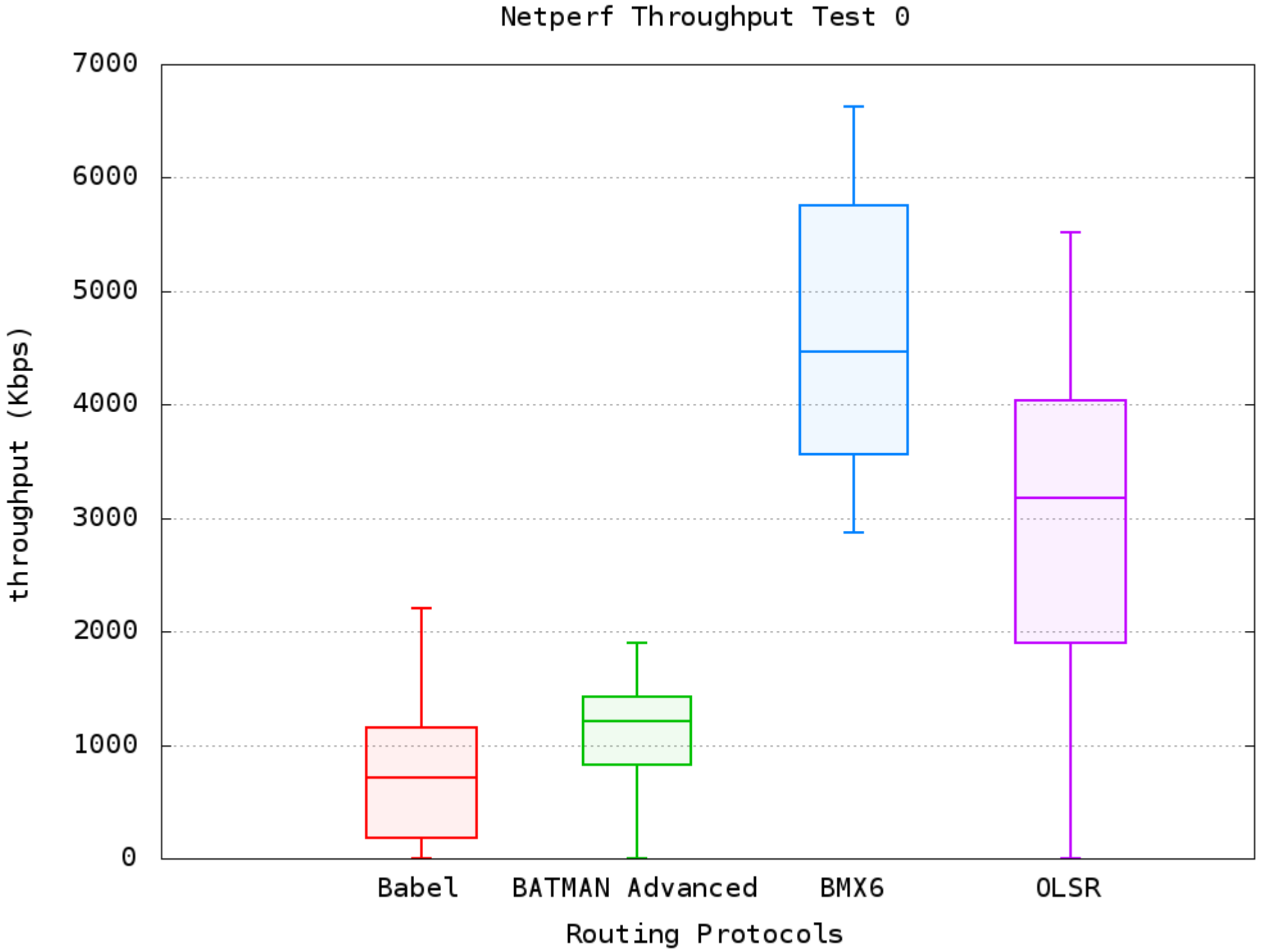
Netperf tests

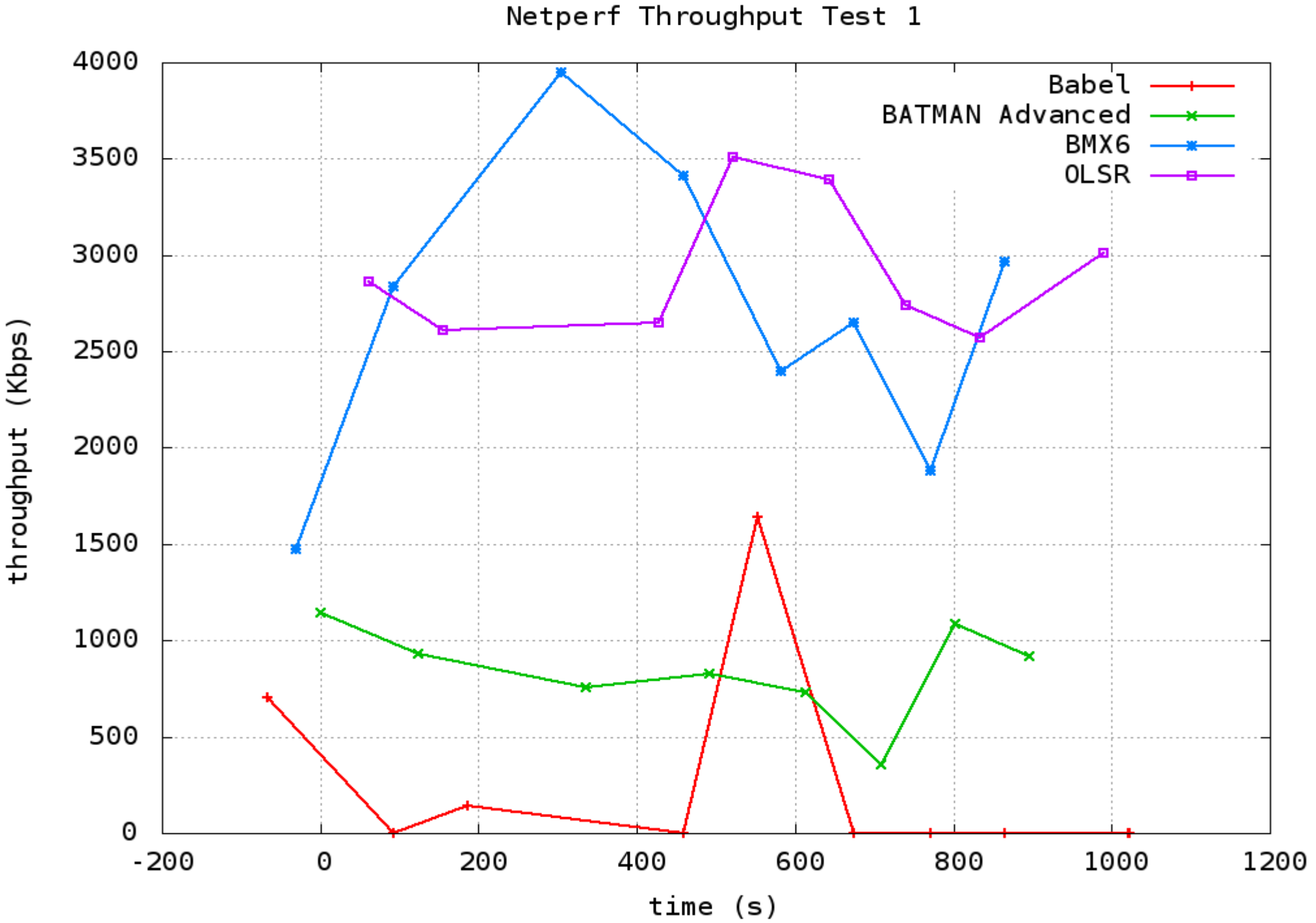
- Each single test was performed among a randomly selected node and a fixed node
- Tests ran sequentially for each protocol
- 31 nodes



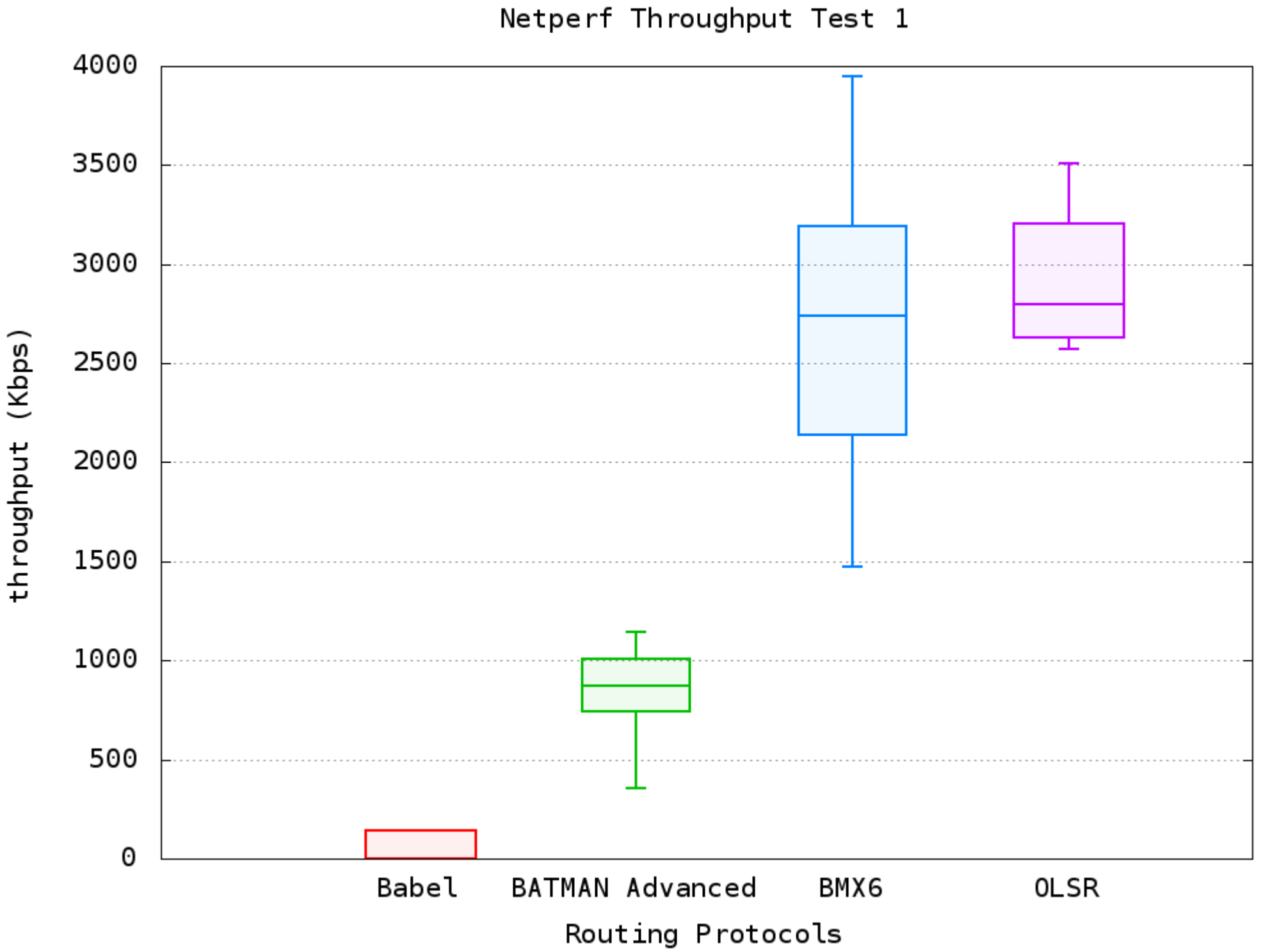


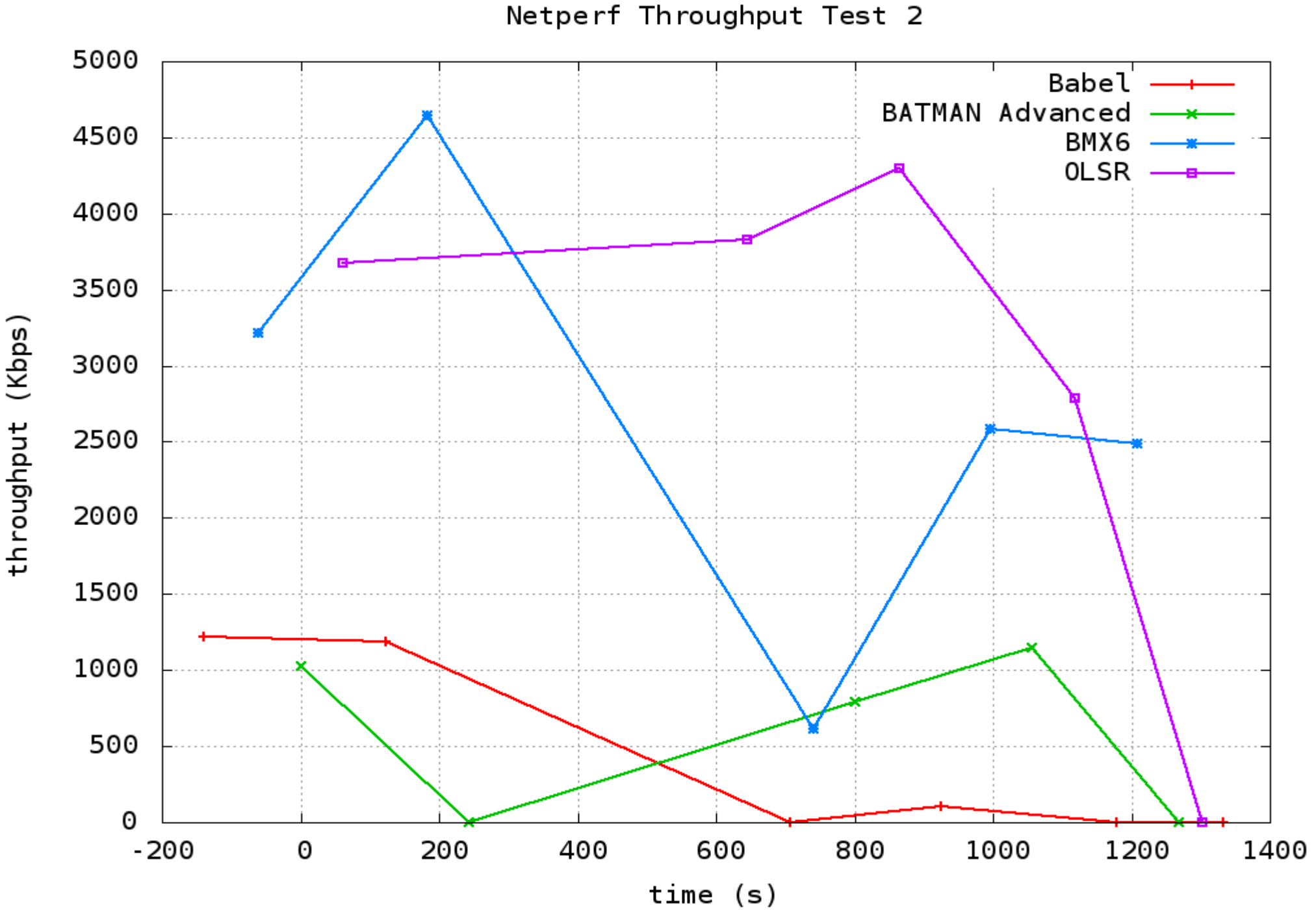
Same destination node for all tests, 24Mbps mcast rate


Netperf Throughput Test 0
7000
6000
5000
4000
3000
2000
1000
0
throughput (Kbps)
Babel
BATMAN Advanced
BMX6
OLSR
Routing Protocols

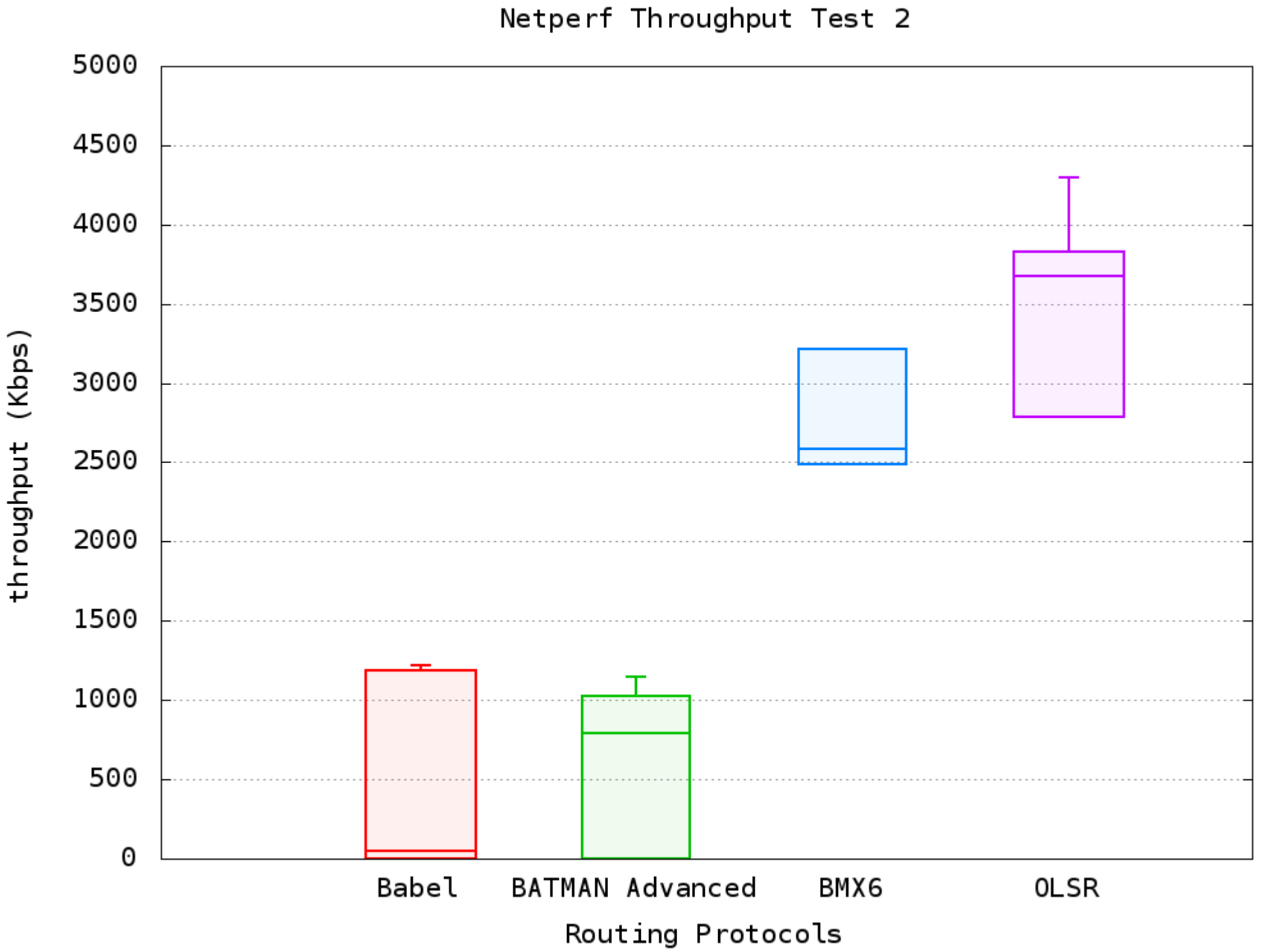


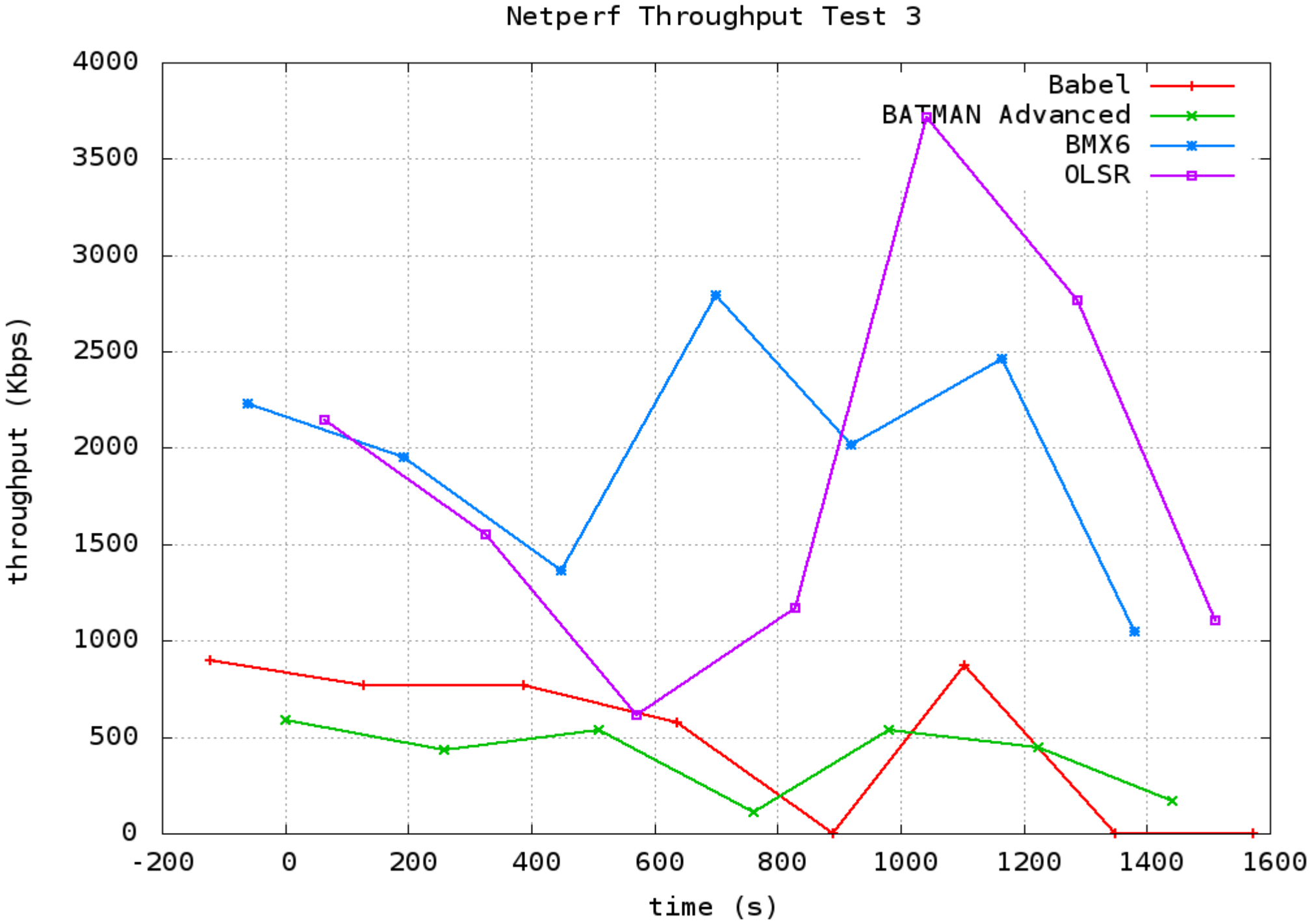
Same destination node for all tests, 24Mbps mcast rate


Netperf Throughput Test 1
4000
3500
3000
2500
2000
1500
1000
500
0
throughput (Kbps)
Babel
BATMAN Advanced
BMX6
OLSR
Routing Protocols

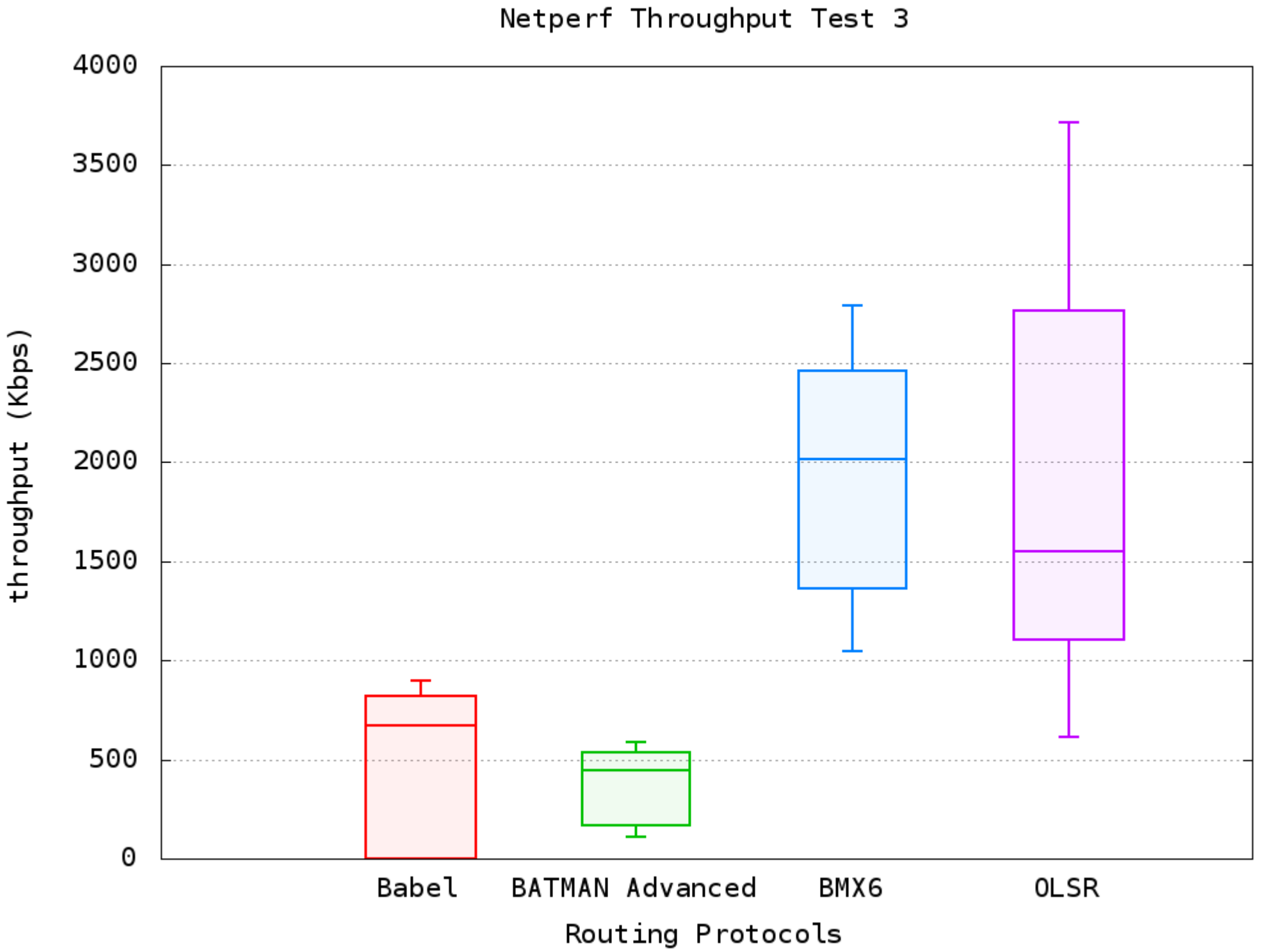


Same destination node for all tests, 24→54 Mbps mcast rate switch at 382s


Netperf Throughput Test 2
throughput (Kbps)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Babel
BATMAN Advanced
BMX6
OLSR
Routing Protocols

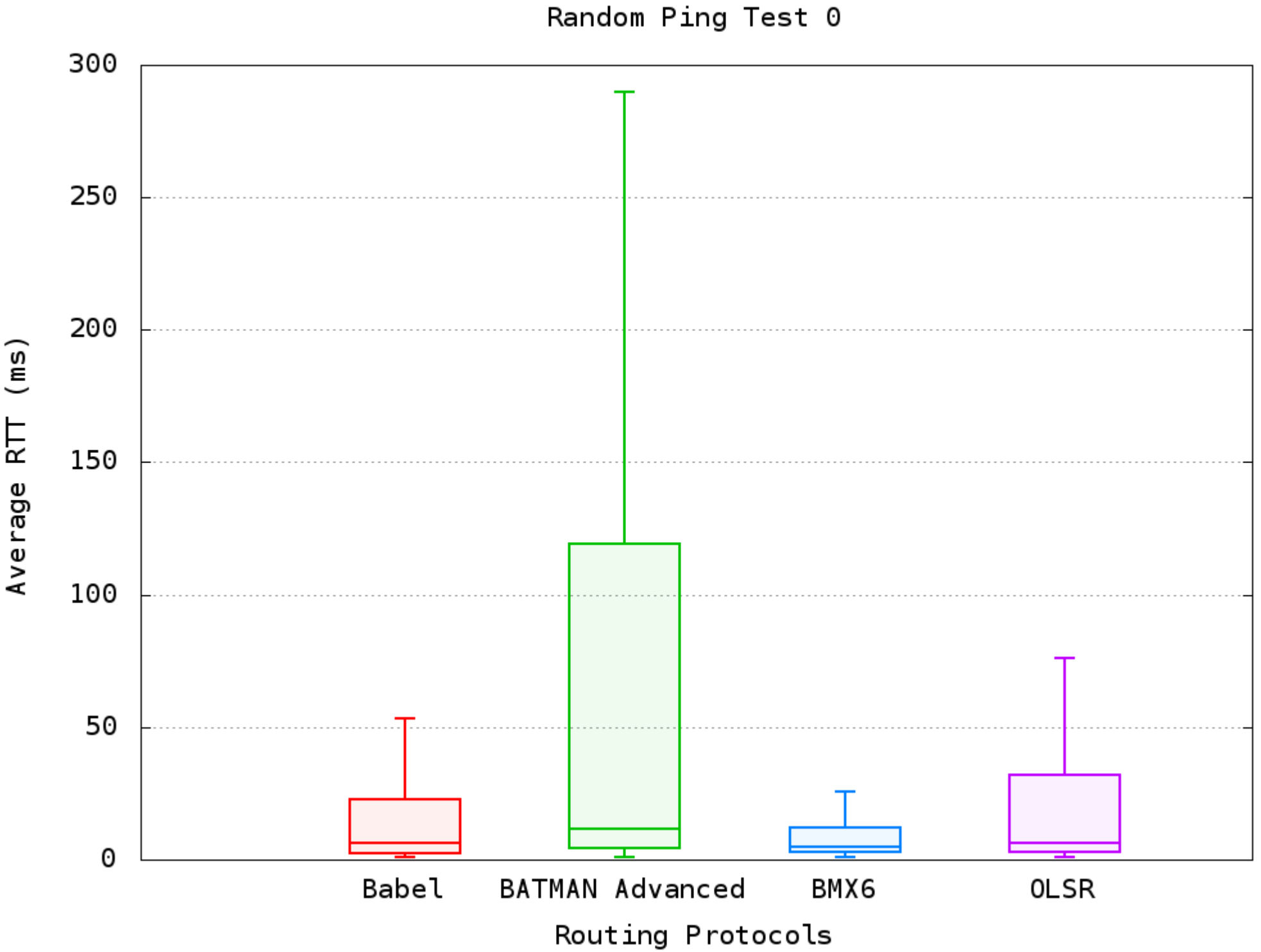


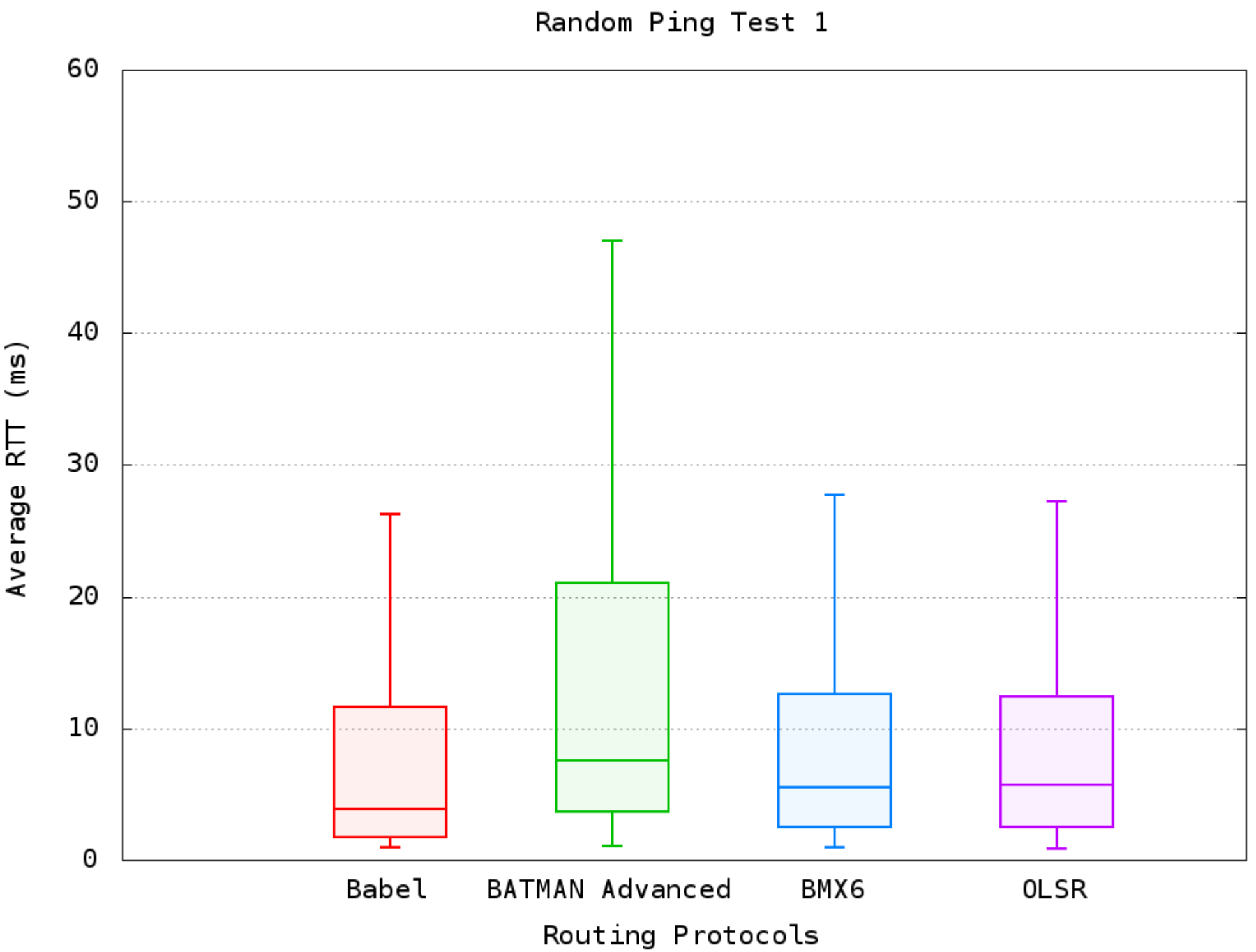
Same destination node for all tests, 6Mbps mcast rate


Netperf Throughput Test 3
throughput (Kbps)
4000
3500
3000
2500
2000
1500
1000
500
0
Babel
BATMAN Advanced
BMX6
OLSR
Routing Protocols

Ping Tests

- Random pings between random routers
- Multicast rate set to 6Mbps


Random Ping Test 0
300
250
200
150
100
50
0
Average RTT (ms)
Babel
BATMAN Advanced
BMX6
OLSR
Routing Protocols


Random Ping Test 1
60
50
40
30
20
10
0
Average RTT (ms)
Babel
BATMAN Advanced
BMX6
OLSR
Routing Protocols

Data, scripts, reference

- https://github.com/cl4u2/battlemeshv6_tests_postprocessing
- http://downloads.battlemesh.org/WBMv6/test_data/
- https://github.com/axn/wbm2pdf/blob/master/tex/wbmv6.pdf?raw=true
- http://ml.ninux.org/pipermail/battlemesh/2013-September/002514.html
- http://ml.ninux.org/pipermail/battlemesh/2013-July/002499.html