

# Knot DNS Update



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# Short introduction

- Open-source authoritative-only DNS server
- Usable for TLDs (and everybody else)
- Portable (Linux, \*BSD, MacOSX), modular
- Runtime reconfiguration
- Support for current standards
  - AXFR/IXFR (both master and slave)
  - EDNS0
  - DNSSEC with NSEC3
- <http://ripe63.ripe.net/presentations/145-KNOT-20111103-LS-RIPE63.pdf>

# New features in 1.0

- DNS features
  - TSIG and ACLs
    - Subnets now supported in ACL
  - Root zone support
  - NSID support (RFC5001)
- Automatic zone compile on server start
- Security improvements
  - Drop privileges after binding to port 53
- Memory requirements slightly improved

# Rough roadmap

- Knot DNS 1.1 (Q2 2012)
  - Speedup of huge IXFR (10k+ records)
  - Focus on stability and bugfixes
- Knot DNS 1.2 (Q3 2012)
  - Dynamic updates
  - Reference Manual
  - NetConf/DNSCCM support(?)
- Knot DNS 1.3 (Q4 2012)
  - Massive DNS hosting support (10-100k+ zones)

# Crystal Ball Department

- Knot DNS 2.0 (2013)
  - DNSSEC signing
  - Reduce memory footprint
  - Optimize performance
  - Enhance CLI
- Knot DNS X.Y
  - Your wishes?
  - Talk to us :)



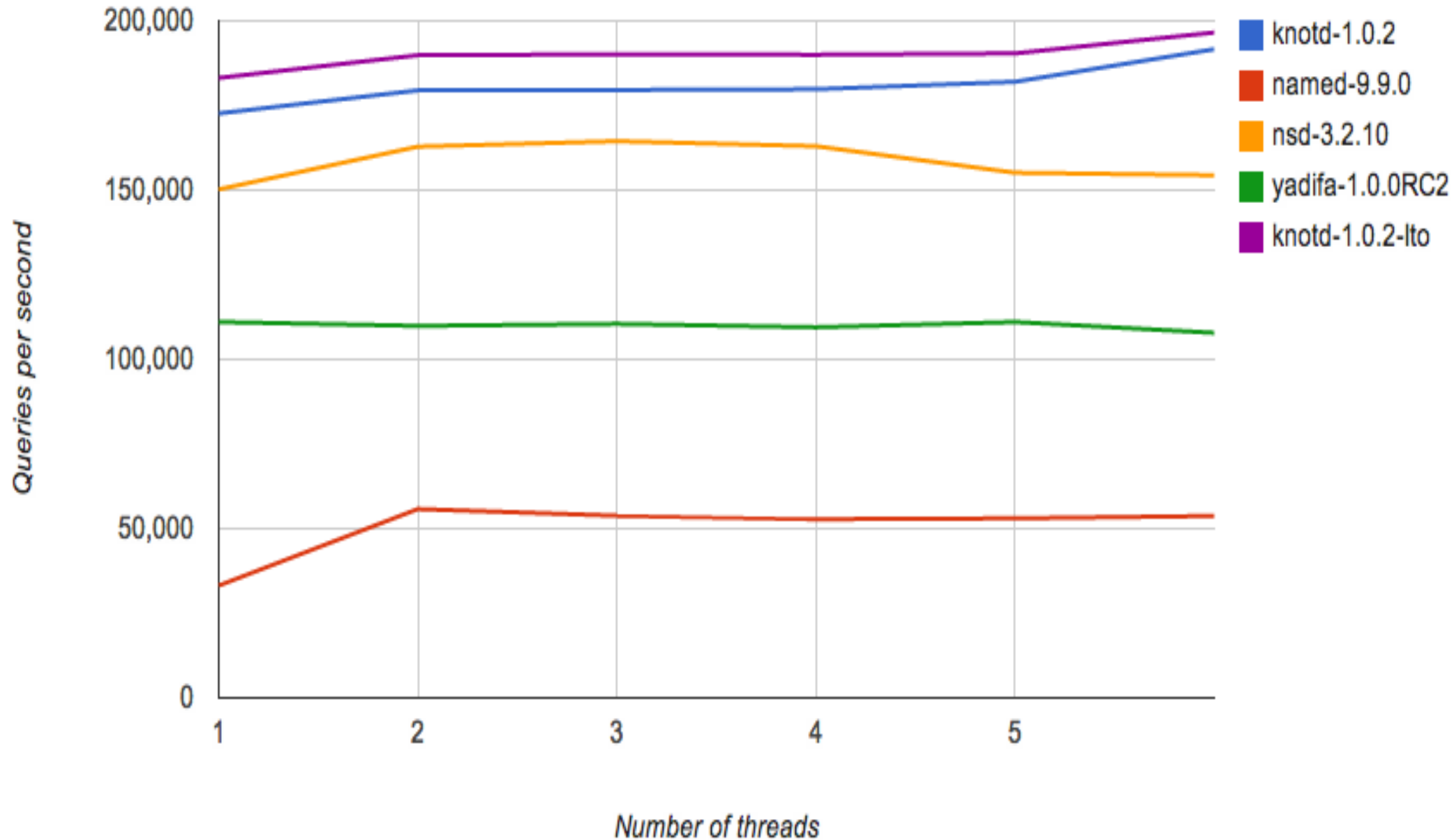
# Testing framework

- Bind 9.9.0, Knot DNS 1.0.2 (+Ito), NSD 3.2.10 and Yadifa 1.0.0RC2
- Test zone:
  - <http://public.nic.cz/files/knot-dns/benchmark-zone.tar.gz>
  - 2 mio of random mix of unsigned records (138MB)
- Test queries
  - 50% in zone records, 50% out of the zone
  - 1 mio queries (18MB) of various type
- Could be biased [done by ourselves]
  - Come to [dns-benchmarking@lists.dns-oarc.net](mailto:dns-benchmarking@lists.dns-oarc.net)

# Performance testing 1

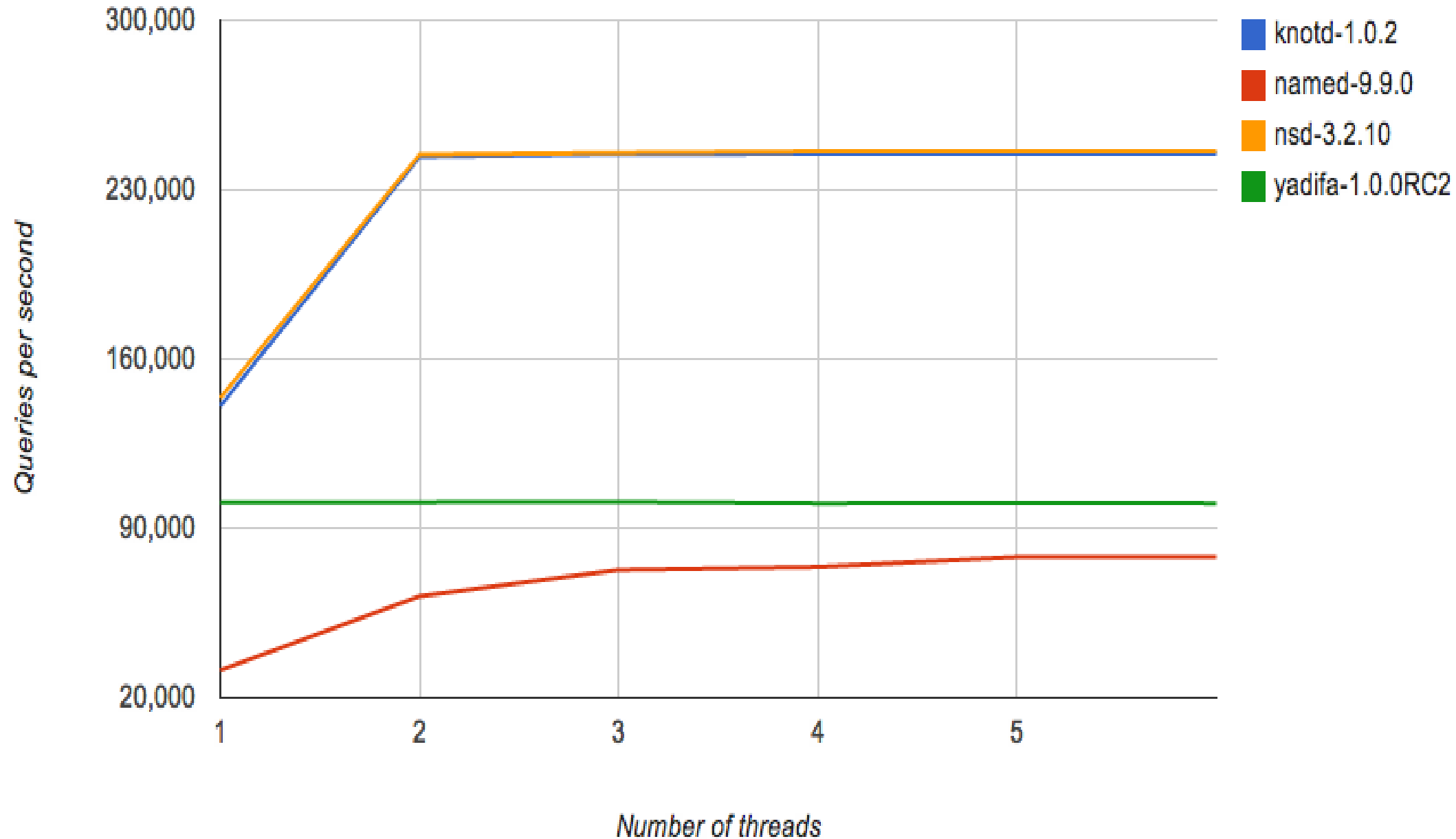
- dnssperf based
- More iterations to stabilize the results
- Independent variable: **threads/processes**
  - Note: Yadifa has default number of threads
- Dependent variable: **queries per second**
- Two runs:
  - Linux 3.x
  - FreeBSD

# dnstperf benchmark (Linux amd64)





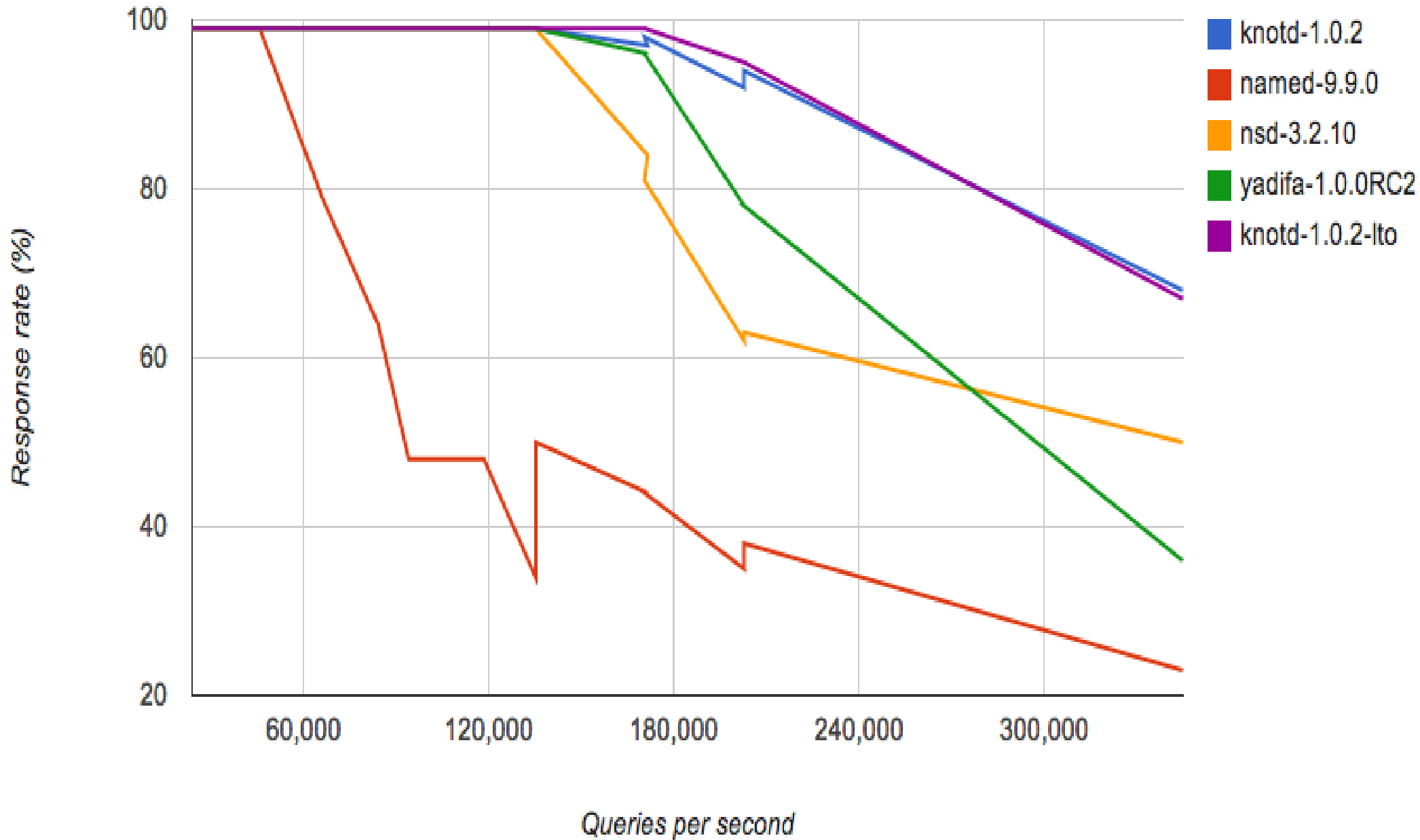
# dnstperf benchmark (FreeBSD amd64)



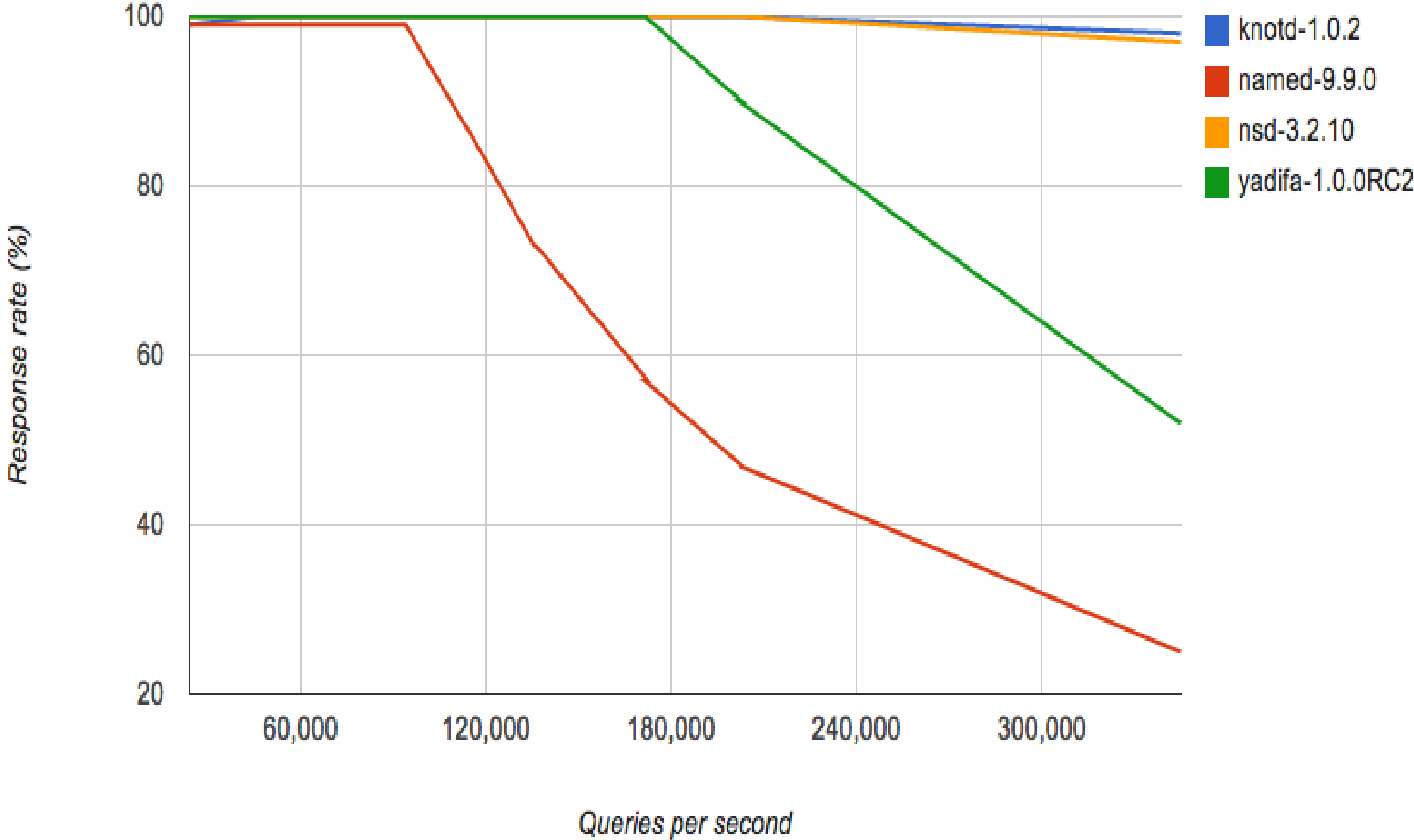
# Performance testing 2

- pcap/tcpreplay based
  - <http://www.yadifa.eu/benchmark>
- Independent variable: **queries per second**
  - Last value: --top-speed
- Dependent variable: **percentage of lost queries**
- Two runs:
  - Linux
  - FreeBSD

# Response rate (Linux amd64)



# Response rate (FreeBSD amd64)



# Resources

- Knot DNS
  - <http://www.knot-dns.cz/>  
(Language switcher at top of the page, WIP)
- Issue tracking and source code
  - <http://git.nic.cz/redmine/>
  - <git://git.nic.cz/knot-dns>
- Mailing list
  - [knot-dns-users@lists.nic.cz](mailto:knot-dns-users@lists.nic.cz)

Questions?

