



NNSD

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NLnet Labs

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To develop Open Source Software and Open Standards for the benefit of the Internet.

Paraphrased Article I of the Foundations Charter

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KNOWN FOR

~~Unbound~~

NSD

Idns

Net::DNS



NSD Goals

Improving
Internet
Security

DNSSEC

Biodiversity

Non-avail of alternative
should not lead to
blocking of DNSSEC

High Performance:
Software not the
bottleneck

Simple thus
Secure

Tool designed for
the job

Do what's needed
and not more

Typically a Secondary
Authoritative server

NSD

Authoritative
only

Reference
Implementation

Secure

Independent

High
Performance

History

NSD 1

packet
precompile

2002-2003

Daniel Karrenberg [daniel.karrenberg at ripe.net](mailto:daniel.karrenberg@ripe.net)

Fri Feb 14 08:50:12 CET 2003

As announced previously k.root-servers.net will start running nsd 1.0.2-rel.

The changeover will start at 0900UTC on Wednesday 19.2.2003.

Between 0900 and 0930 all instances of K will be sequentially cut over.

This way there will be no service interruption. During the cut-over

period we will answer either using bind8 or nsd. After 0930 K will

answer only using nsd. K will support identification of software and

version using a id.server and version.server in class CHAOS as per

the nsop-serverid.

RRset
precompile

NSD 2

2003-2006

nsd is designed to increase the diversity of software in the server system, the lack of which is widely considered to be a potential vulnerability. The nsd software has been designed from scratch specifically as an authoritative name server. It has no design commonalities with bind, the currently prevalent DNS implementation.

In addition to that nsd provides a significant increase in the performance reserve of k.root-servers.net.

Please report any anomalies with k.root-servers.net service to [<ops at ripe.net>](mailto:ops@ripe.net) as usual.

nsd can be found at <http://www.nlnetlabs.nl/nsd/index.html>.

DNSSEC

NSD 3

IXFR-in

2006-
current

IPv6
from day 1

Typical use cases

As one or more of the secondaries

Provisioning system

Hidden Master

Behind load balancer

Balancer





Vaporware, under active development

[HTTP://WWW.NLNETLABS.NL/SVN/NSD/TAGS/NSD_4_0_0_IMP_5/](http://www.nlnetlabs.nl/svn/nsd/tags/nsd_4_0_0_imp_5/)

Production release: end 2012? - 2013

Goal: make NSD more suitable for hosting environments

10⁵ zones

Zone config templates

Dynamic behavior

Reconfiguration

Reloading

At least same performance as NSD3

No changes
in query
logic

edit of domain
nodes in μ DB
and nsec3 pre-
compile

'Patterns',
new config file
structures

```
$ nsd-control repattern  
$ nsd-control addzone \  
  bla.example mypattern
```

Outgoing
Incremental

Performance
radix tree and
improved
compilation

edit of domain
nodes in μ DB
and nsec3 pre-
compile for
NXDOMAIN

XFRD
scalability
to cope with
growing
memory

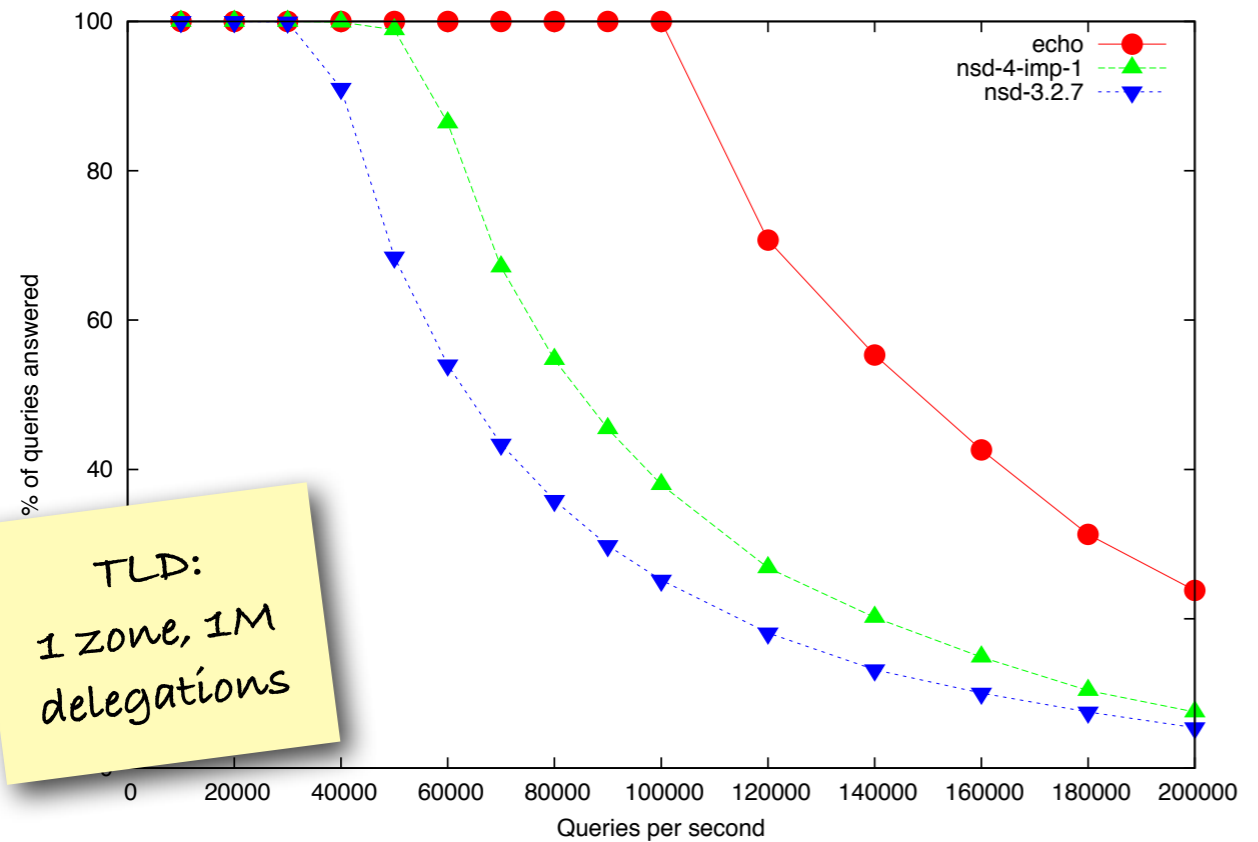
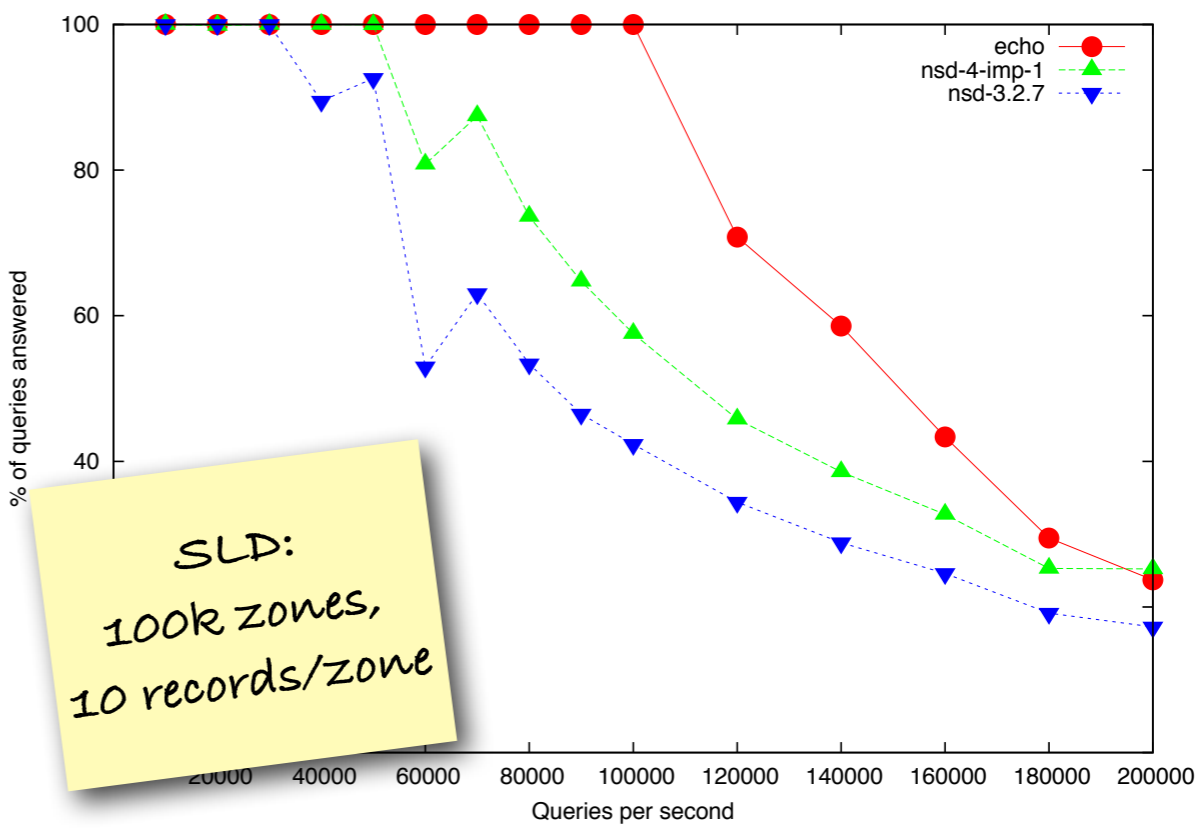
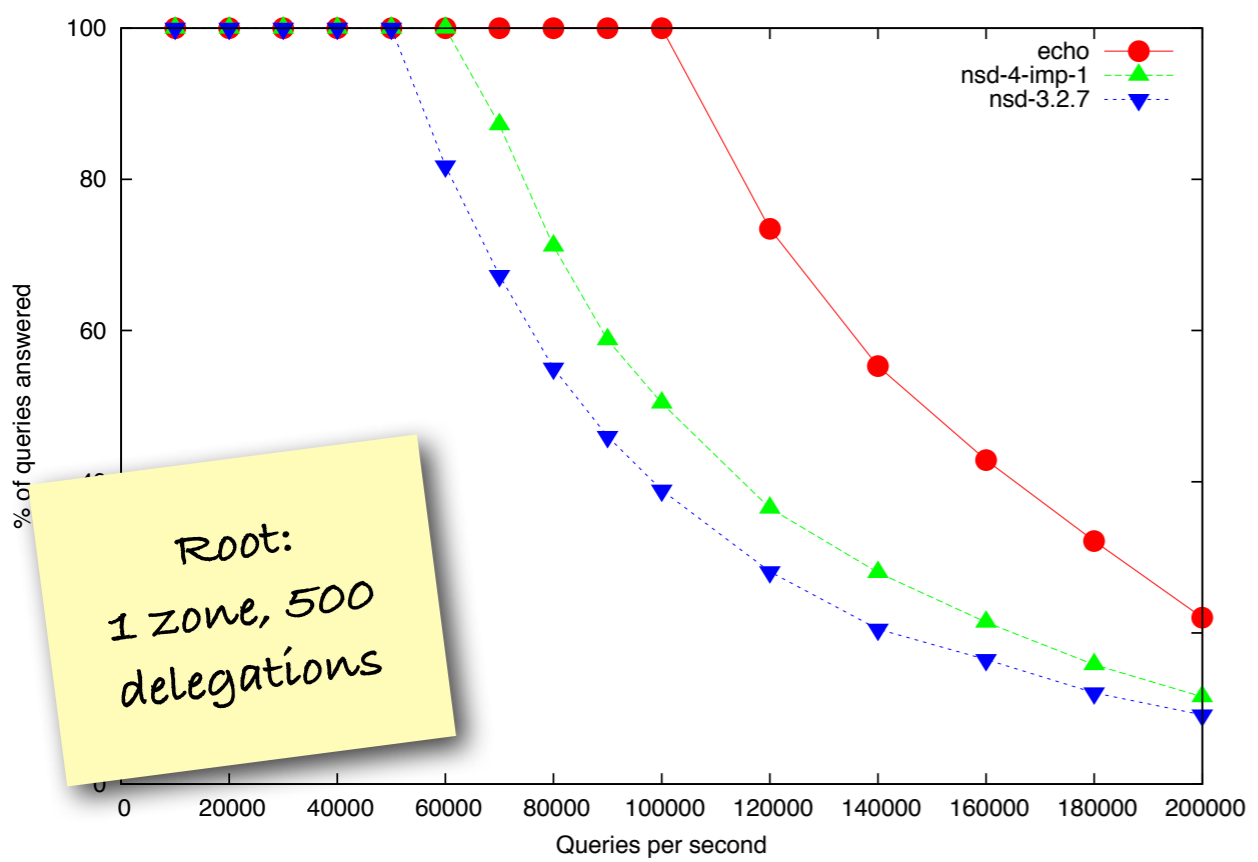
Full
production
grade tests
release

μ DB on disk,
removal of zonec,
editable NMAP
database

Control
SSL remote
control

Munin,
logging,
other
usability

μ DB is the NSD memory database, unmapped to disk



- Use one core of 4x3.2Gz, 12Gb, 1Gbit intel Debian
- 1M queries, randomized.
- 100.000 qps is 64 mbit query stream
- Assumptions
- Domains called example123.tld
- No nxdomain
- No dnssec

Legacy hardware.
For comparison with
NSD3 only

NSD &

NLnet Labs

BSD License

allows for proprietary
extensions

Support to
community

Free

Committed to
announce 2 years
in advance

Paid Support

Support levels
and prices
available on
request

nsd-users@nlnetlabs.nl