



Evolution of a name server

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Overview

- General ideas
- Main features of NSD Versions
 - Version numbering 1.2.3
- NSD 4 design
- Vaporware example

NSD Characteristics

- Authoritative only
 - Geared towards root servers and TLDs
- Just enough Documentation
 - Users technical competent
- Simplicity
 - No creeping features
 - Only Class IN
- Resilience against high load

Characteristics (2)

- Build from Scratch
 - Independent code
- Resilience against high loads
 - Compiled answers
 - Static data to serve
 - Memory for Speed

NSD 1.0

- Just a server
 - Answers in pre-compiled database
 - Server Ignorant about the servings
- Spartan User Interface
 - No configuration
- Little to no XFR support
- RFC 103[345], 2181, 2308

NSD 2.0

- DNSSEC ready
 - RFC 403[345]
 - Internal database structure changed
 - Less compilation possible, less ignorant
- NSD AXFR module
- Configuration file

NSD 2.0 ++

- More dynamic behaviour
 - AXFR (in & out), TSIG
- NSD Control
 - Less spartan UI required
 - More complexity internal
- Still a memory hog

NSD 3.0

- AXFR & IXFR (in) support
 - Notify
 - Use timers in SOA
- Full DNSSEC
 - NSEC3
- More DNS meta support
 - RFC 4635 (HMAC SHA TSIG)
 - DNAME

NSD 3.0++

- Internal complexity++
 - For XFR processes
 - IPC Introduced
- Still the same serving Speed
 - No internal (static) database change



- Vaporware logo!
- Lots of zones (x00K)
- Zone Configuration templates
- Internal database change
 - Speed-up server
- More preprocessing
 - NSEC3 hashes stored



- Internal complexity grows
 - Complexity moves to compiler subsystem
- NSD control (via port [TBD])
 - hides complexity
- More dynamic behavior
 - Reconfiguration
 - Reloading zones
 - (Slow) dynamic update



- Improved TCP support
- Added features should not hamper original target audience
- NSD 3.0 might need longer support
- Non vaporware: end 2011
- Wishes: speak to me

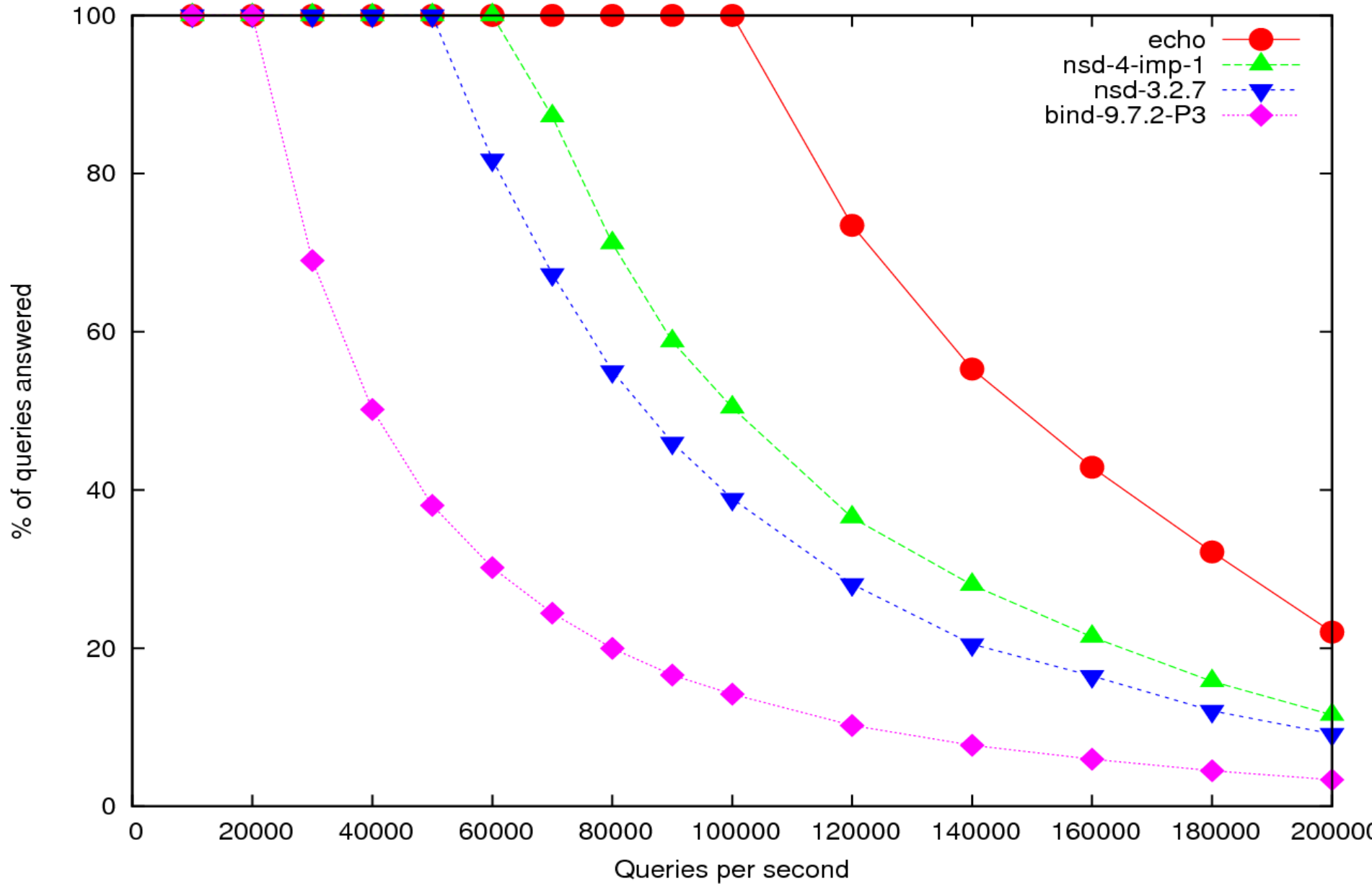
Speed tests

- Part of new memory layout put in NSD 3.2.7
- Three scenarios
 - L0: root: 1 zone, 500 delegations
 - L1:TLD: 1 zone, 1M delegations
 - L2:SLD: 100K zones, 10 delegations/zone

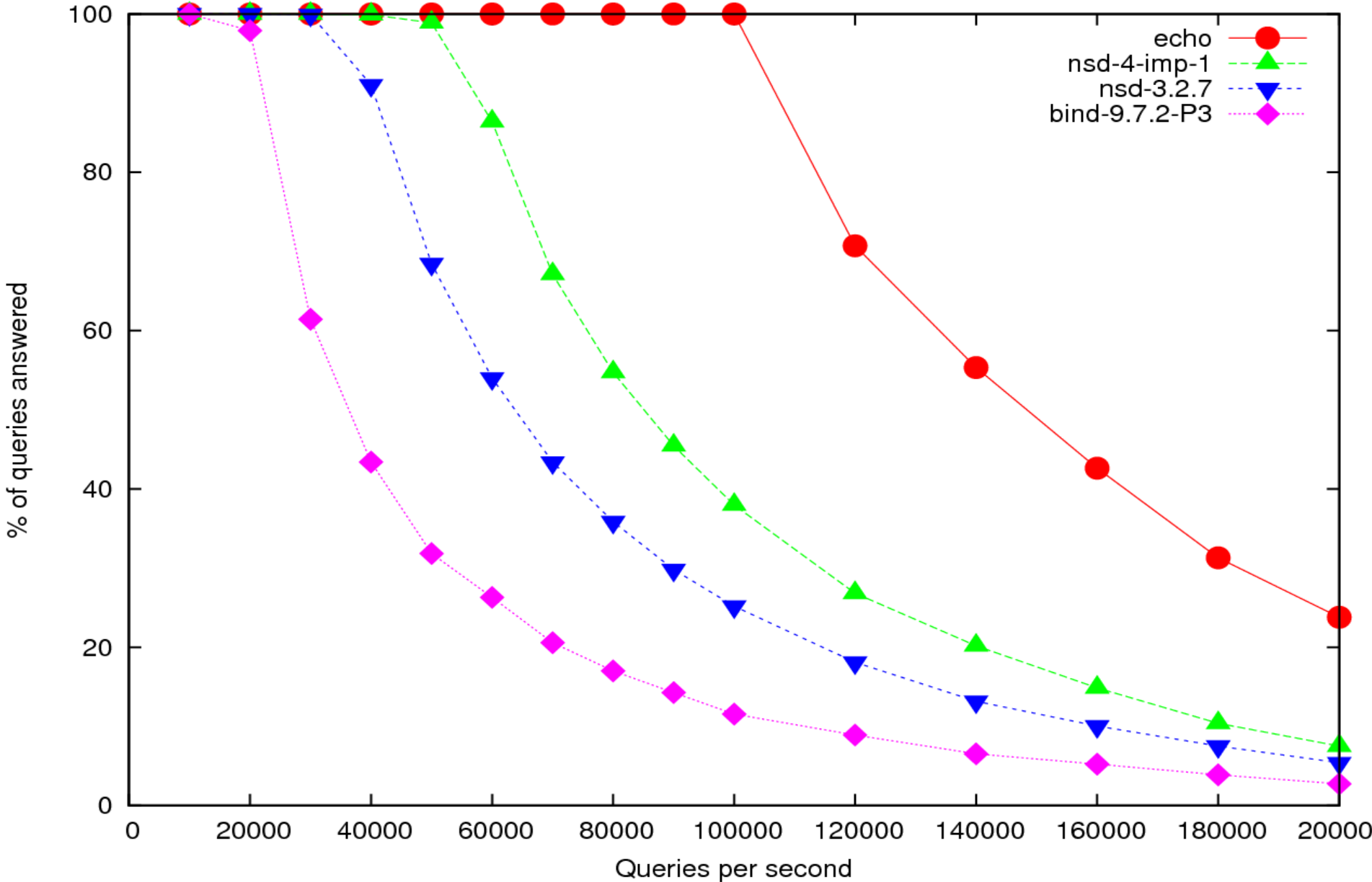
Test Setup

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

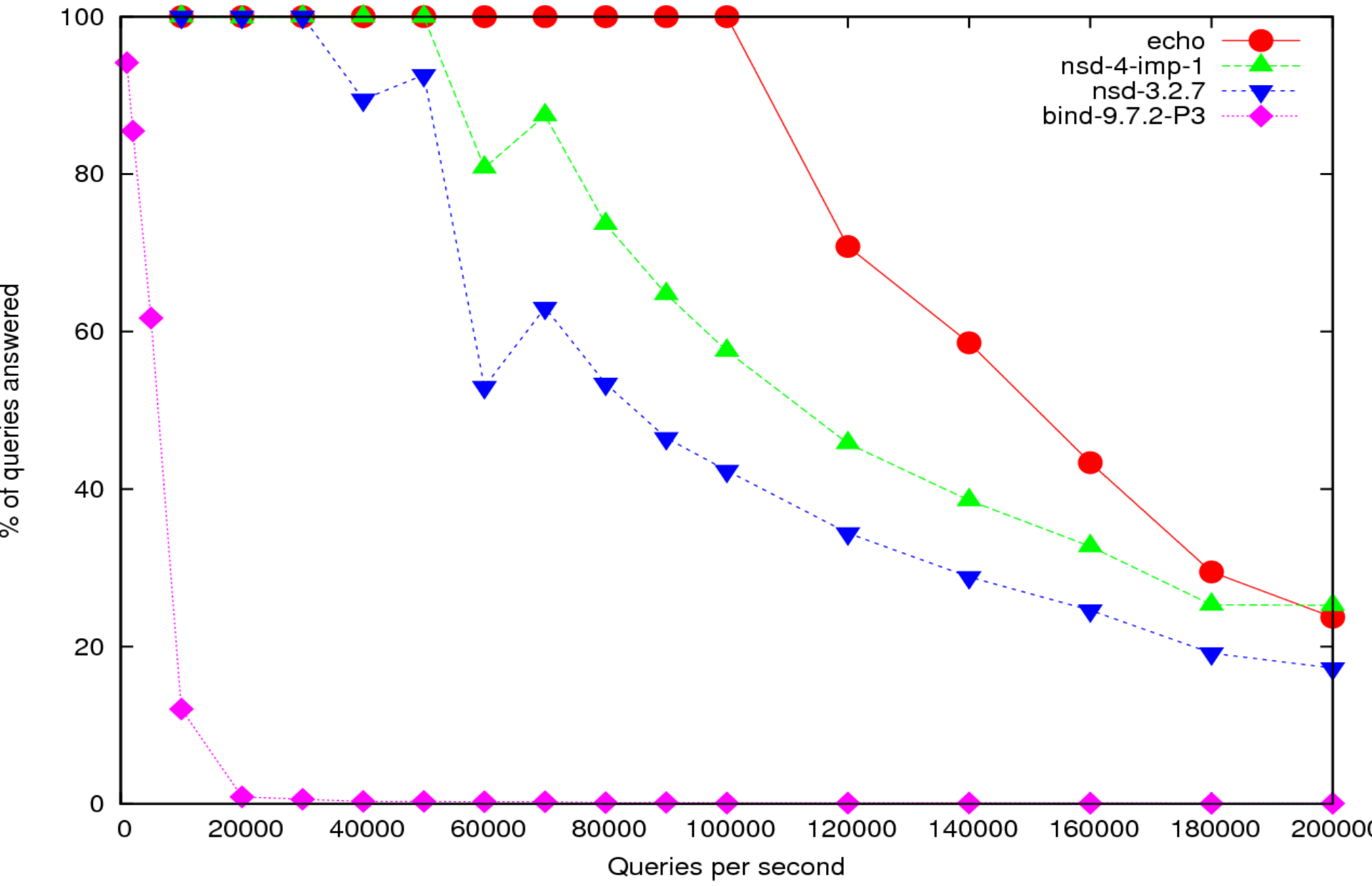
L0-Root



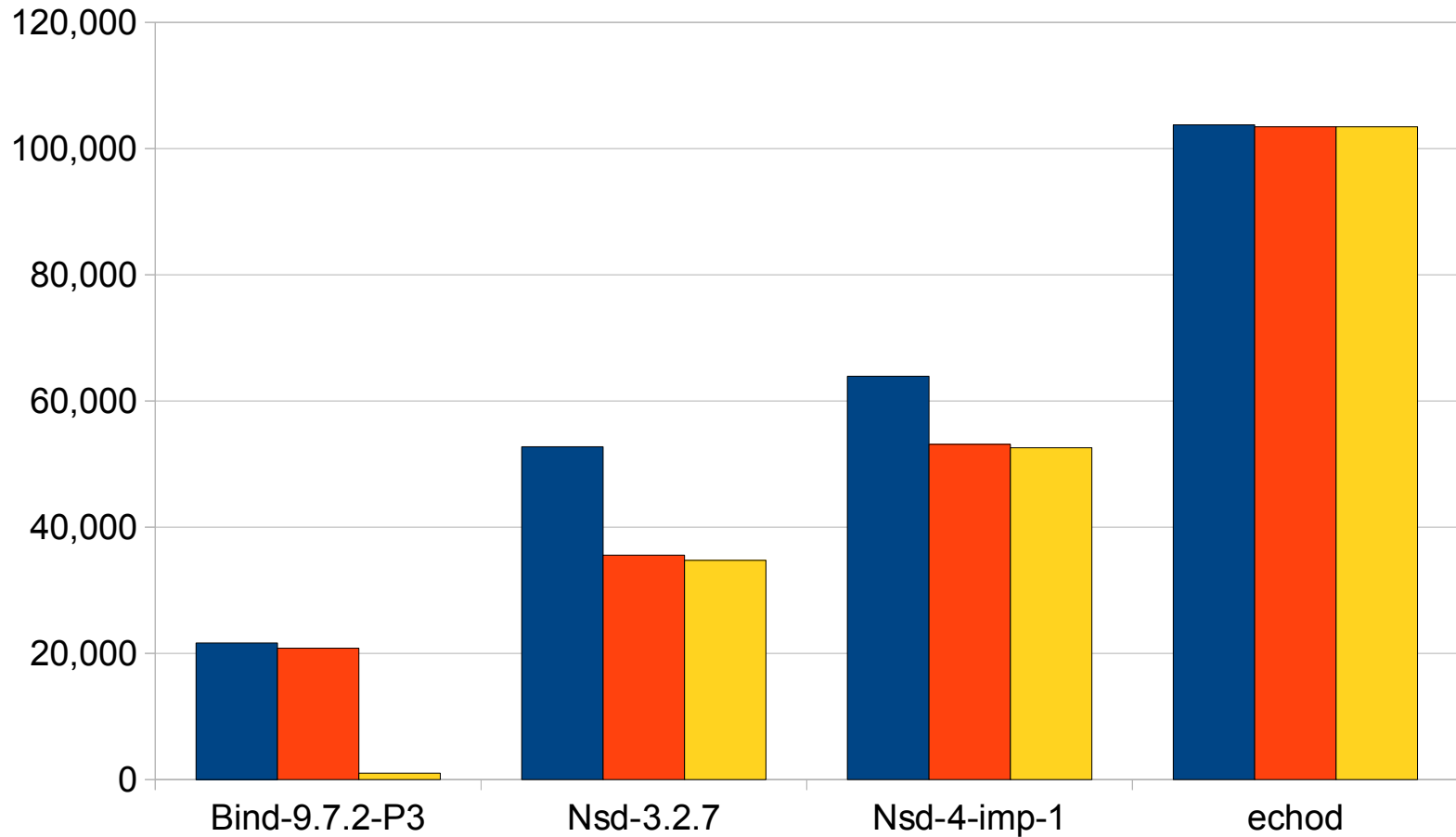
LI-TLD



L2-SLD



95% returns



Question time

- We'll be around to talk to

???

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