BIND 10:
To Beta… and Beyond!

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Agenda

- Logistics
- Introduction: why BIND 10?
- What is awesome about BIND 10
- What is in the beta?
- What to keep in mind when considering an upgrade
- Future of BIND 9 and BIND 9 to BIND 10
- How do I get started?
- Additional resources and upcoming events
- Q&A

Logistics

- Webinar will run for 1 hour.
- All participants are automatically muted upon entry.
- Today's webinar is being recorded and will be posted on http://www.isc.org/webinars within 3 business days.
- Questions about logistics or webinar content? Type them into the Q&A area for the host or presenter to respond, or click the "Raise Hand" or "Request" button to be unmuted.

Why BIND 10?

- BIND 9 is more than 10 years old
- The computing world has changed
    – Multi-core machines, massive RAM, …
- The networking world has changed
    – Fiber everywhere, mobile devices, …
- DNS software "marketplace" has evolved
    – Special-purpose servers, new ideas
- An architecture for the next 10+ years

What Makes BIND 10 Special?

- Customizable
  - Both "out of the box" and bespoke
  - Full run-time control (no restarts)
- Scalable
- Reliable
  - Well-tested
  - Resilient to failures and software errors
- Re-usable
  - Well-defined APIs and libraries

Cool BIND 10 Technologies

- Cooperating processes
  - Helps customization, scaling, …
- Generic data sources
  - SQLite and in-memory now, more later
  - In-memory slightly faster, *much* more compact than BIND 9
- Full run-time configuration
  - New modules can use easily
  - RESTful HTTP/SSL interface
- Best logging system around

Current Status 1/2

- Working DNS server
  - In-production AS112 server
  - Several small production users
- DNS libraries for C++ or Python
  - Same as used by BIND 10 itself

- **Beta release THURSDAY**
  - Production-ready for authoritative

Current Status 2/2

- Resolver work resuming this winter
  - Performance
  - Query traceability
  - Performance
  - DNSSEC validation
  - Performance
- Tentative plans (subject to change):
  http://bind10.isc.org/wiki/ResolverPlan2013

What Is In the Beta?

- Base BIND 10
  - boss / msgq / cfgmgr
  - bindctl / cmdctl
  - stats
  - isc-sysinfo
- Authoritative server
  - DNSSEC support (NSEC, NSEC3)
  - AXFR/IXFR as master and/or slave
  - DDNS
- DNS Libraries

Installing the Beta

- Installing BIND 10 Beta is non-trivial
  - Relatively high number of dependencies
    - Python 3, Boost, Botan, ...
  - Working to get these as OS packages
- System specific install guides
- http://bind10.isc.org/wiki/SystemSpecificNotes
- Don't bang your head against a wall!
  - Try BIND 10 Jabber room
  - Send mail to bind10-users@lists.isc.org

Using the Beta

- By default no DNS service started
  - Admin choice what to run
  - You'll probably want the auth module!

- By default auth module uses SQLite
  - Reasonable if you have 10's or 100's q/sec
  - Nice if you have 1000's of zones
  - Can load from zone files using `b10-loadzone`

Using the Beta

- In-memory data source available
  - Can load from zone file or SQLite
  - Slightly faster than BIND 9
  - Uses *much* less memory (single core)

- Can run as a master
  - Requires auth too (full auth for now)
  - Supports AXFR, IXFR, TSIG
  - Sends NOTIFY
  - Only from SQLite for now

Using the Beta

- Can run as a slave
  - Supports AXFR, IXFR, TSIG
  - Default AXFR, can configure IXFR
- Supports Dynamic DNS (DDNS)
  - Separate module
  - Only on SQLite for now
- Fun stuff to try
  - Changing logging configuration
  - Looking at stats with a browser
  - Killing a BIND 10 process

BIND 10 and Quality Assurance

Code review policy for all committed changes
  http://bind10.isc.org/wiki/CodeReviewProcedure
 Use various static code analysis

- cppcheck
- Full warnings treated as errors for gcc, Clang, Sunstudio
- Clang static analysis
- Working with Coverity to get BIND 10 project checked

BIND 10 and Quality Assurance

Test-Driven Development (TDD)
- High percentage of unit test coverage
- > 90% of Python and >85% of C++
  http://bind10.isc.org/wiki/TestCodeCoverage
- System tests also used
  - Lettuce test framework (similar to Ruby Cucumber)
  - Coverage not as comprehensive, but being extended
- Continuous Integration (CI) system
  - New commits are built & tested on various platforms
  http://git.bind10.isc.org/~tester/builder/builder.html

Things to Keep in Mind when Migrating

- BIND 10 is beta!
  - Probability of bugs
  - Things may be weird... let us know

- BIND 9 to BIND 10 migration manual
  - Will be automated in the future

- Tons of missing BIND 9 features

- DNSSEC (re-)signing missing
  - Also inline signing

BIND 10 and DHCP

- ISC DHCP is being re-implemented using BIND 10's architectural platform
- Modular dhcp server client and relay
- First class IPv6 support
- high performance
- "hooks" mechanism built in from the beginning
- Additional goal of embedded-friendly dhcp versions

DHCP Schedule

- First year of work completed with skeleton server
- Aggressive 2012 schedule to try to get a production ready server within a year

Code will be ready for general use and a public beta in summer 2013.

Project details, code, tickets and more at:
bind10.isc.org

BIND 9 – 10 Co-existence

- Period of multiple options
- Two substantially different architectures
- Transitional tools planned
- No official BIND 9 EoL date yet
- Modular development model may allow innovation in BIND10 modules to be shared with BIND9 deployment for a time

And, What About BIND 9.9?

> Released February 2012
> - Current version 9.9.2
> - 9.9.2 in September (stabilizing update)
> - 9.9.3 performance improvements (January 2013)
> - 9.9.4 (Q2 2013) designated ESV

> For current status of all versions see **isc.org/software/bind/versions**

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Future of BIND 9 and ISC DHCP?

- BIND 9.10 is scheduled for next summer
- After that, feature development focus is moving to BIND 10 for both BIND and ISC DHCP in 2013
- That said, there is **no current planned EoL date** for these projects.

A word about support

- Once BIND 10 is production ready, ISC support customers may use their ISC BIND support queue (and eventually, DHCP queue) for questions regarding BIND 10 exactly as they do now for BIND 9. Until that time, best effort support will be provided with the help of the dev team.

Further Education and Resources

- **isc.org/support/training** – all new BIND 10 Trainings in 2013 – isc.org/ - 10% discount coupon following this session
- **isc.org/bind10** – please complete the impressions survey!
- **bind10.isc.org** – extensive technical documentation, place to file bugs

Questions

Thank you for your time

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