BIND 10: From Prototype to Production

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Who is ISC?

Internet Systems Consortium, Inc. (ISC) is a non-profit 501(c)(3) public benefit corporation dedicated to supporting the *infrastructure of the universal connected self-organizing Internet*—and the autonomy of its participants—by developing and maintaining core production quality software, protocols, and operations.

**Open Source DNS**

Quality DNS Capabilities for Everyone

**BIND 10**

The next generation of DNS

**ISC Professional Services**

Support Development Training Consulting Best Practices Design Call in the experts!

**Hosted**

@ Public Benefit Hosting for the Common Good

**Public Benefit**

Expanding the internet, with rough consensus, running code, and open standards

**IPv6**

The time has come. Let us help you with training, consulting, and tools.

**DNSSEC**

Are you ready? We can help!

**SIE**

Changing how the Security Communities Productively Collaborate

Monday, March 14, 2011
DNS is important... no?

Why is DNS important?

- DNS is important because...

- DNS is what everything uses to connect to everything on the Internet.

- Slow DNS affects the user directly - delayed VoIP calls, slow web browsing... Broken DNS is even worse!

- With IPv6, you can't get away with typing IP addresses any more (although "normal" people never did).

- Plus, insecure DNS adds ways for people to attack other Internet systems.
The DNS marketplace has evolved to meet community needs over the last 10 years.

- **BIND 9** 10+ years old, written as a combined authoritative/recursive/kitchen sink. It runs about 80% of the DNS servers in the world, probably including yours. And it's good - the best general-purpose DNS software - but getting... crufty. Other implementations have brought new ideas.

- **NSD** is a high-speed authoritative only server, good for servers with small number of zones. Unbound is the by the same organization but is a resolver. The separation of the authoritative and recursive has proven useful to many operators.

- **PowerDNS** is great for people who want to hook up SQL to their DNS.

- Proprietary software - you can get InfoBlox, BlueCat or Men & Mice to configure your networks with less administrative overhead.
Enter BIND 10

Some needs... have not yet been filled.

So... this is where BIND 10 comes in.

BIND 10 is a ground up rewrite of BIND envisioned by ISC and its founding sponsors to be a solution diverse DNS requirements. The project, now entering its third year, is a collaborative architecture and development exercise.
The Five Year Plan

✓ Year 1: Authoritative server
✓ Year 2: Recursive server
● Year 3: Production ready nameserver
● Year 4: “Drop-in BIND 9 replacement”
● Year 5: Really fun stuff
How Do We Do It?

- **BIND 10 Architectural Goals:**
  - Modularity - bind 10 model isolates auth, recursive and other processes, coordinated by one “boss” process
  - Well Defined APIs and Libraries
  - Full Runtime Control - dynamically generated configuration
  - Flexible and intuitive command line tool
More Architectural Goals

• Customization “out-of-the-box”
  - authoritative-only, recursive-only
  - slave-only, master-only
  - enable/disable dynamic DNS
  - support your favorite SQL backend

• Customization via code changes
  - community generated modules creating a “BIND 10 Marketplace”
  - system administrators can hack on it themselves
And more goodness

- Scalability
  - BIND 8: single core ("CPU" then)
  - BIND 9: multiple cores (4-6 or so)
  - BIND 10: 10's or 100's of cores, multiple machines (clustered)

- Robustness
  - Reduce serious software bugs
  - Minimize impact of bugs
  - Reduce "fate sharing"
Open and Collaborative Development

- BIND 10 Development is Open
  - Public Trac Site (http://bind10.isc.org)
  - Public Developer List (bind10-dev@lists.isc.org)
  - Public Git Repository

- Collaborative Core Development
  - 8 ISC Developers and Support Staff
  - 3 JPRS Developers
  - 7 CNNIC Developers and Testers
  - 1 CZ.NIC Developer

- Community Engagement
  - GSoC
Where we are

• Nearly at the end of year two
• Developmental releases every six weeks
• Year two final release March 22, 2011 will have:
  • a functioning authoritative server with “bind 9 like” in memory database performance
  • a functioning resolver
  • a sqlite backend implementation
  • a statistics gathering channel with command line access
• In year three, a fully production ready authoritative server will be the goal in September 2011, with a production ready validating resolver due out end of March 2012.

bind10.isc.org or www.isc.org/bind10
A bit like early Mozilla

- BIND 10 is not intended to be a single piece of software delivered by a company and then managed as a product, but rather an entire ecosystem, with a community of developers and users, nurtured by an organization with the necessary background and approach..

- The seed has not yet taken root, but the software is just about ready for the next stage.
- In the next 6 to 12 months, early adopters will come on board, and if we do things right, an example of the best type of open source/Internet project will bloom...
Supporting BIND 10

• ISC is a small, non-profit company
• New sponsors would be great
  - We need money!
  - Varied types of sponsors also needed
• Contributors of *any kind* are useful
  - Requirements, wish-lists, sanity checks
  - DNS administrators, users, developers
  - testers

More information at
www.isc.org/bind10 or bind10.isc.org
Thank You to our Generous Sponsors
Upcoming BIND 10 Events

- March 22: Year two developmental release
- March 30: BIND 10 and DHCP BoF at IETF 80
- April 14: BIND 10 in Year Three Web Seminar

More information at isc.org/bind10
Questions?
Thanks for attending.

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