BIND 10 –
the next BIG thing

What is it?

- BIND10 will be the next step in the evolution of DNS & DHCP
  - More evolution than revolution in the code sense
  - More revolution than evolution in the UI sense
  - Product Family that integrates various protocol implementations more closely
  - Framework to facilitate integration with other products

What is it? (ii)

- Modular implementation – YOU choose the set of functionality for your server
  - Caching resolver
  - Authoritative name server
  - DHCP server
  - Any combination of the above

Why?

- BIND 9 was first released in 2000
- Targeted hardware architecture has changed radically
- Protocol and standards have changed and grown in scope
- New technologies will need new features

Why ISC

- ISC has maintained and developed BIND the past 11 years
- The “Managed Open Source” concept is working well for the industry
  - Significantly fewer Security Vulnerabilities for BIND 9 than 8 or 4
  - Cohesive code base
- Committed to public benefit model

Who usually cares

- Traditional DNS advocates
- TLDs
- ISPs
- Vendors that build or distribute BIND
- Root operators
- Enterprise customers
- Web-based businesses

Why everyone should care

- The Internet is a fact of life
- DNS is core to the Internet – email, the web and nearly all network applications
- DNS continues to be explored as an option for new functionality
- DNS software must be designed to accommodate and facilitate growth

What happens to 9?

- BIND 9 development will continue in its own right for 3-5 years although BIND 10 will be much more efficient and better suited to the evolving environment
- Future BIND 9 versions will used as a testbed for upcoming BIND10 technology
- Side note: BIND 8 support will end sooner rather than later

Design Goals

Modularity

- ability to have clearly defined points at which to interface with the backbone of BIND
- allowing the selection of a variety of back-ends for data storage such as:
  - current in-memory database
  - traditional SQL-based server
  - embedded database engine
  - back-ends for specific applications such as a high performance, pre-compiled answer database

Design Goals

Customisability

- ability to select the functionality to be enabled in a given binary build
  - caching-only
  - authoritative-only
  - enable the generation of light footprint images of BIND suitable for embedded or lightweight applications.

Design Goals

Clusterisation

- ability to run on multiple but related systems simultaneously
- using a pluggable, open-source architecture to enable backbone communications between individual members of the cluster
- co-ordination services would enable a server farm to maintain consistency and coherence

Design Goals

Integration with customer workflow

- flat text configuration and data files, while adequate for most purposes, are not a very flexible way of integrating with the ever more sophisticated back-end systems that customers use for process management.
- BIND will provide new forms of interaction with (and interfaces to) monitoring and configuration environments
- ability for workflow integration would enable closer coupling between BIND and DHCP without the need to combine them into a single service or server as an example

Design Goals

Resilience

- BIND 9's current action when exceptions are detected amounts to logging and exiting.
- This creates the potential to turn minor problems into Denial of Service attacks.
- ISC believes that in many cases it will be possible to enable BIND to recover from failure and continue operation, reducing the impact of programmer errors on the availability of the service.

Design Goals

Better runtime control

- BIND 9 was designed to use configuration-file reloads as a means to alter configuration.
- explicit design goal for BIND 10 -- **finer-grained approach to configuration changes rather than the reload option of BIND 9**

How do we get started?

- Funding to hire additional staff so BIND 9 and ISC DHCP development can continue while this new effort is started
- Technical input from variety of sources
- Timely feedback from knowledgeable users
- FUNDING

What’s the plan?

Year 1	Planning, Design, Market Study: produce and circulate an engineering design and an implementation plan.
Year 2	Build and document prototype: implement software interconnects and build preliminary versions of each module.
Year 3	Alpha testing: BIND 10 released for testing by experts, who will also test the API and its documentation by writing and testing their own extensions to it.
Year 4	Beta testing: BIND 10 available for FTP by anyone who wants to try it. Coordinate extensions and plugins within test community. Refine performance, especially in multiprocessor environment.
Year 5	Full release and full deployment on F-Roots and TLD servers. Release 10.1 by end of Year 5.

What’s the budget?

Year 1	$1M
Year 2	$2.4M
Year 3	$2.4M
Year 4	$2.5M
Year 5	$2.6M

- $11M over 5 years
- 90% labor
- 8% travel
- 2% equipment

Next steps

‘Do not ask what your country can do for you. Ask what you can do for your country.’