

BABEL IN BIRD

IMPLEMENTATION STATUS UPDATE

Toke Høiland-Jørgensen
Karlstad University

IETF 101, March 2018



THE BIRD ROUTING DAEMON

For those who don't know:

The BIRD project aims to develop a fully functional dynamic IP routing daemon primarily targeted on (but not limited to) Linux, FreeBSD and other UNIX-like systems and distributed under the GNU General Public License.

- From-scratch implementation of major routing protocols
- Speaks BGP, OSPF, RIP, BDF, RA and now Babel
- Clean architecture, very readable code
- No problems handling the full BGP routing table (scalable!)
- Developed by a bunch of friendly and meticulous Czech people

<http://bird.network.cz>

BABEL IN BIRD

- Initial implementation (by yours truly) in 2015
- Implementation experience talk at IETF 95
- First released in Bird 1.6 (April 2016)
- Implemented RFC6126 with no extensions
 - IPv6 only (no dual-stack support in Bird 1.6)
- Interoperable with babeld

UPDATES SINCE IETF 95

- Bird 2.0 (dual-stack) released in December 2017
 - IPv4 support!
 - v4 routes over v6 Babel transport
 - Updates to support RFC6126bis:
 - Sub-TLVs parsed and mandatory bit honoured
 - Hello flags parsed and unicast hellos discarded
 - Still interoperates with babeld

UPDATES SINCE IETF 95 (CONT.)

- Additional unreleased changes:
 - Source-specific routing (first extension!)
 - Implements draft-ietf-babel-source-specific-03
 - Core protocol code change < 200 lines
 - Speaks to babeld git, but not old versions (new wire format)
 - Acknowledged retractions (the "Chouasne algorithm")
 - Pending code review
 - Partial unicast implementation
 - Not shared with anyone yet

FUTURE PLANS / IDEAS

- Further experiments with unicast
- Security (DTLS and/or HMAC)
- WiFi link parameter detection and metrics
- Scaling and packet transmission optimisations

This is not a promise of features to come, and there is no schedule!

Patches always welcome!

SUMMARY

- Full RFC6126bis protocol implementation in Bird 2.0
 - Interoperates with deployed babeld
- Source-specific routing available in Bird git
 - Does **not** interoperate with old babeld
- Security and unicast work pending
- Please test it and report back! Patches also welcome

<http://bird.network.cz>