BIND 9
The Past, The Present and The Future

Ondřej Surý @ ISC
CSNOG 1, Brno

ISC Internet Systems Consortium

BIND 9.0: The Past

- First released in 2000

- Other things from 2000:

  - gcc 2.95.2

  - Linux kernel 2.4.0

  - GNOME 1.2

  - Qt 2.0

  - Window 2000

  - First camera phone

  - Playstation 2 launched

  - New century started (only in pop-culture and US)

BIND 9

Past Releases

BIND 9.12: The Present

- NSEC Aggressive Use

- Serve Stale (TTL Stretching)

- Response Policy Interface

- Major Refactoring [1]

- Speedup factor: 1.25-6

- CDS/CDNSKEY tools

- EDDSA Support
  (when available in OpenSSL)

1. https://www.isc.org/blogs/evan-hunt-presented-the-bind-9-12-refactoring-at-dns-oarc/

BIND 9.13: Next Release

- Open Development

- Faster Release Cycle

- Reduce Supported Platforms

- New Features

- More Refactoring
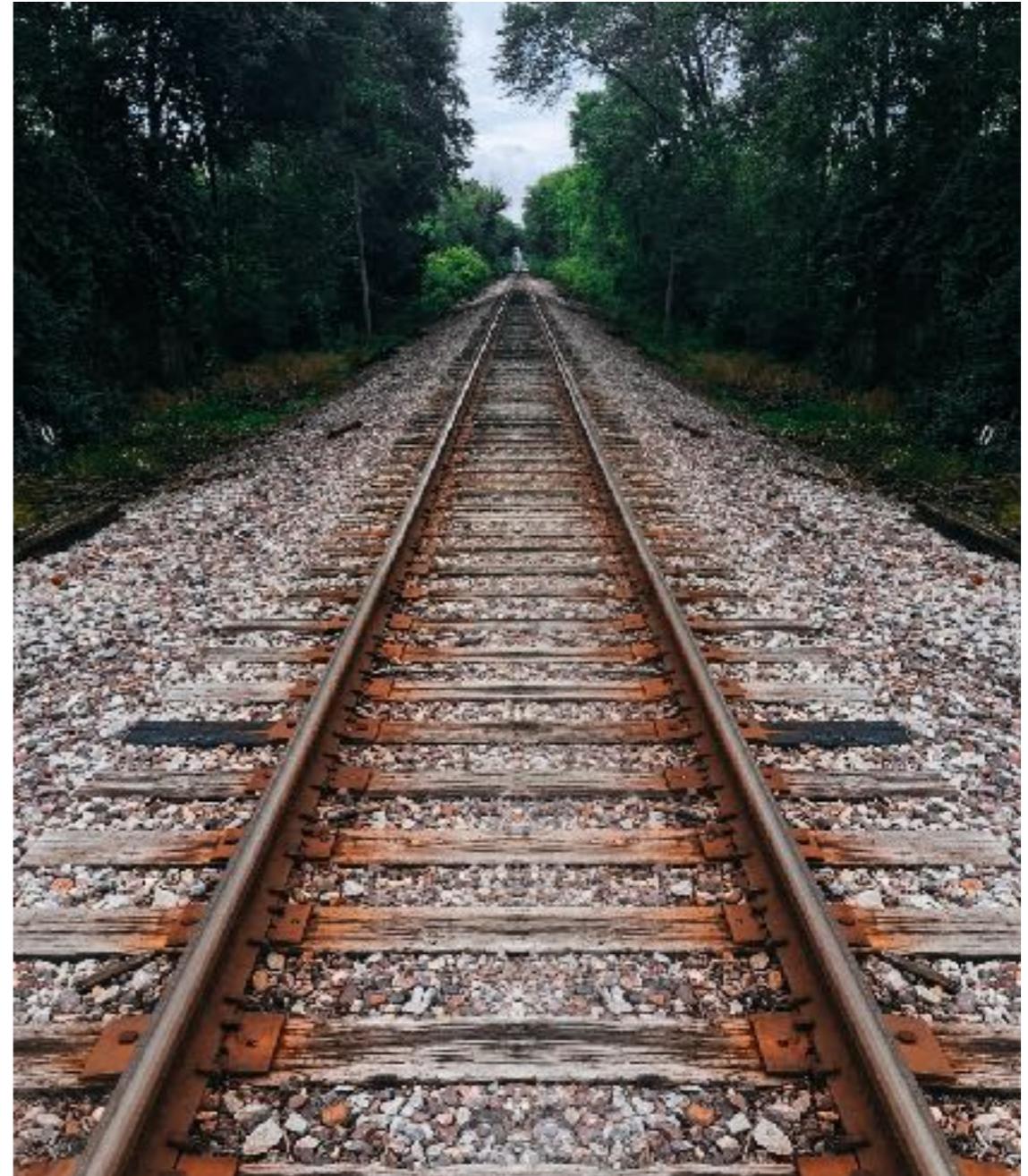
Open Development

- Open (By Default) Issue Tracker

- Public Merge Requests

- Public Wiki

- Public Continuous Integration

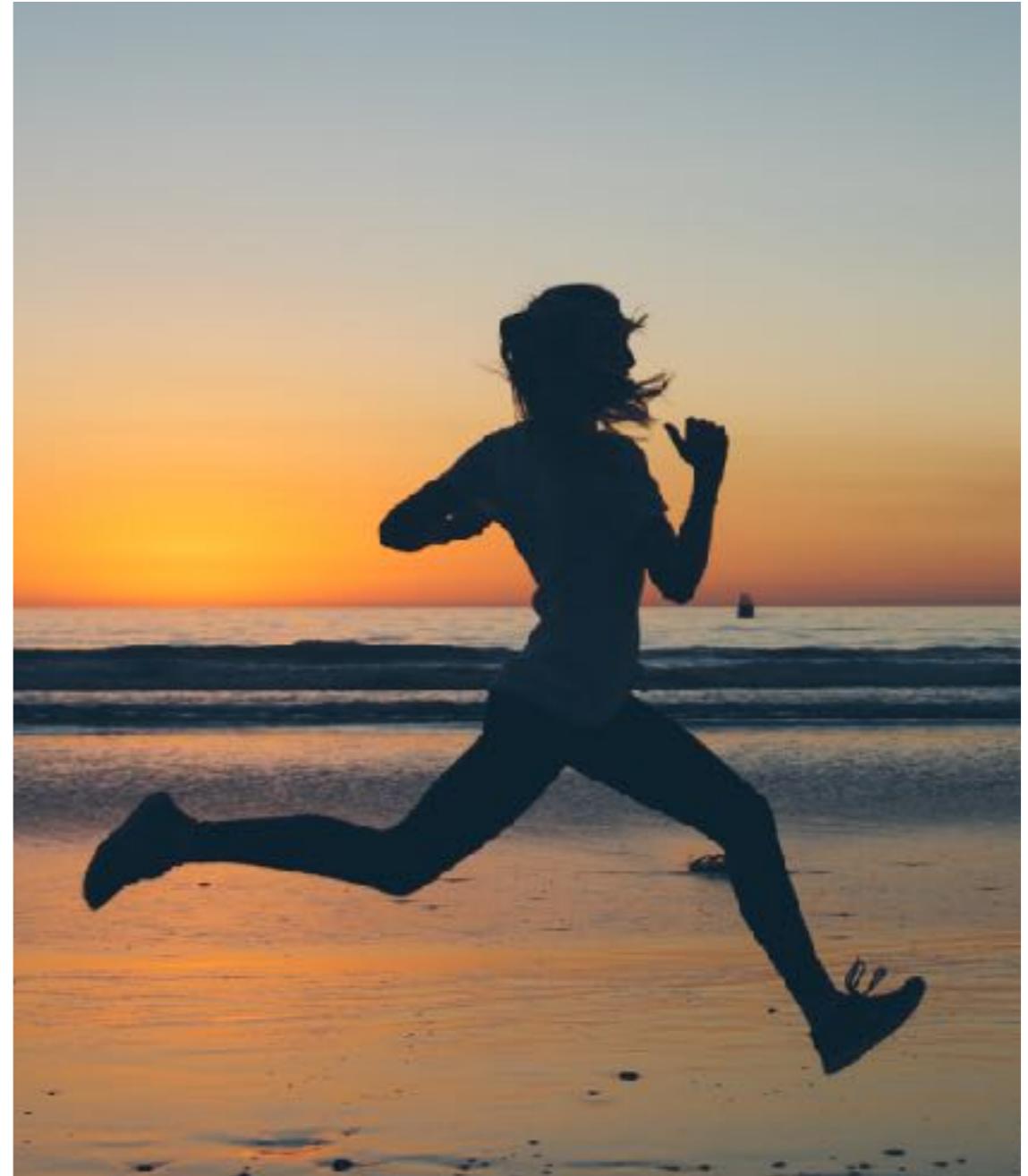- Public Web Forum to discuss BIND and DNS

ISC GitLab

- Self-hosted Instance at:
  https://gitlab.isc.org/isc-projects/bind9

- In production since February 2018

  - 327 issues (164 open, 163 closed)

  - 354 merge requests (280 merged, 45 closed, 29 open)

  - Continuous Integration (GitLab CI) by default

    - GitLab CI exposed many intermittent test failures

Faster Release Cycle

- Odd Numbers — Development Release

  - 9.13.x, 9.15.x, 9.17.x

  - Releases as we go

  - Best Effort Support

- Even Numbers — Stable Release

  - When Development Release stabilise

  - 9.13.<last> → 9.14.0

  - Supported until next Stable Release = ~ 1 year

- Every Second Stable Release — Extended Support Version

  - Supported until next ESV Release with overlap = 4 years

Photo by Bradley Wentzel on Unsplash

BIND 9

Future Releases

Supported platforms

- At every release cycle we evaluate the life-cycle:

  - Major Linux distributions

  - FreeBSD, OpenBSD, NetBSD

  - Selected proprietary operating systems (Mac OS X, Windows, Solaris)

- Create a list of operating systems and distributions still supported by vendors

- Support the list for the life-cycle of each major release (9.14, 9.16, 9.18)

- There will be several Tiers:

  - Supported Tier (We will patch it)

  - Best Effort Tier (Send us the patch)

 - Non-supported Tier (Don't even bother sending a patch)

Modernise

- The new list of supported platforms will allow us:

  - Fully utilise modern C language standards

    - Depend on standard libraries (POSIX, etc…)

    - Use C11 language constructs (probably stick with the VC11++ subset)

  - Use external libraries when appropriate

  - Reduce the code we have to maintain in BIND9

BIND 9.13.0

- First Development Release

  - 3917 files changed, 96691 insertions(+), 132425 deletions(-)

- libidn2 support (Courtesy of Redhat)

- Root Key Sentinel for monitoring RZ KSK Rollover (draft-ietf-dnsop-kskroll-sentinel)

- DNSSEC always enabled (cryptography library is not mandatory)

- Seccomp support has been removed

- Crypto refactoring (in progress)

BIND 9.13: What's cooking?

- Root Zone Local Copy (Mirror Zones) [1]

- QNAME Minimization [2]

- Dynamic Modules & Hooks

  - Ability to load dynamic module and hook into query-response processing

  - Refactor non-core functionality into modules

Photo by Nicholas Peloso on Unsplash
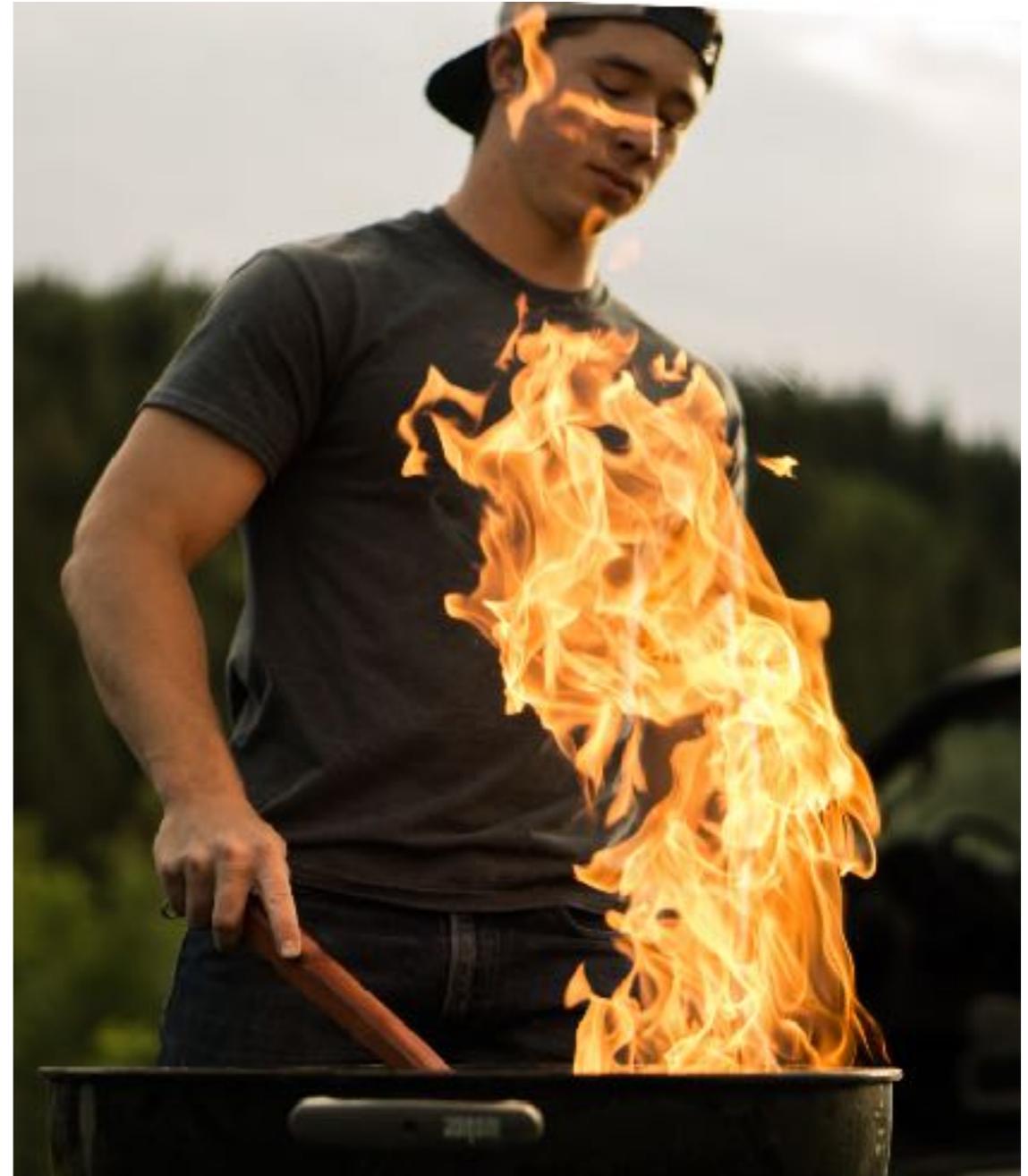
Crypto refactoring

- BIND 9.13.0

  - Uses system or OpenSSL provided CSPRNG

  - No more -r /dev/urandom

  - Support for OpenSSL 0.9.x has been removed

- BIND 9.13.1

  - Uses xoshiro128** for fast PRNG

  - PKCS#11 only used for public-key cryptography

  - OpenSSL always mandatory for non-PK cryptography

  - DSA, RSAMD5 and GOST algorithms removed (draft-ietf-dnsop-algorithm-update)
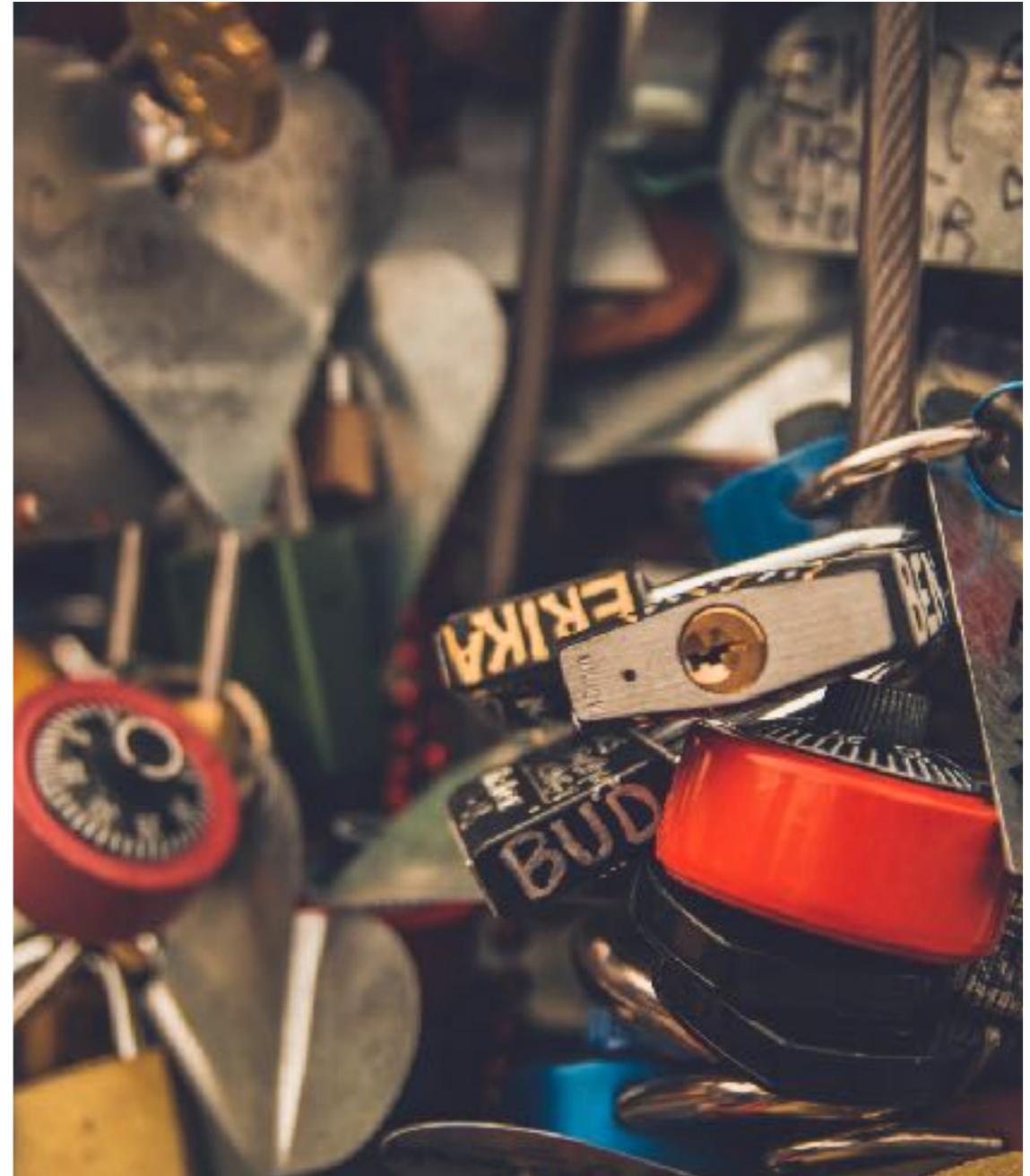
Introducing BINDCoin!

- Every DNS Server as a Miner!

- DNS Smart Contracts

- DNS Caches as permanent storage[1]

- ICO Resource Record

- Stocks will skyrocket!!!

1. https://blog.apnic.net/2016/04/04/dns-zombies/

For people only reading the slides: This is a joke!

Refactoring

"In anything at all, perfection is finally attained not when there is no longer anything to add, but when there is no longer anything to take away, when a body has been stripped down to its nakedness."

–Antoine de Saint Exupéry

BIND's not yet dead, baby,
BIND's not yet dead!

Thank you!