

Bitrig NYC*BUG

John C. Vernaleo, Ph.D.

jcv@bitrig.org

05/06/2015

A Bitrig

Bitrig is a free, fast, and secure Unix-like Open Source operating system. It is available on current hardware platforms.

<https://bitrig.org/>

What is Bitrig?

- ▶ BSD Unix-like OS.
- ▶ ISC License.
- ▶ Based on OpenBSD.
 - ▶ We don't want to define the project just in relation to OpenBSD.
- ▶ NOT owned, run, or staffed by a single company.

But I'm going to talk about OpenBSD anyway...



- ▶ Forked from OpenBSD in 2012.
- ▶ First 1.0 Release in 2014.
 - ▶ But usable snapshots well before then.
 - ▶ Has been used in production and development environments.

Basic setup should be very familiar to OpenBSD users.

- ▶ Split into src, xenocara, ports.
- ▶ Periodic snapshots.
- ▶ Ports and packages.
- ▶ Simple, familiar installer.
- ▶ Firmware blobs not in kernel.

Relationship with OpenBSD

- ▶ Periodically sync changes that we want from OpenBSD.
- ▶ For ports, the syncs tend to include almost everything.
- ▶ Bug fixes and work has been ported from Bitrig to OpenBSD.
- ▶ Ports that are just on Bitrig could (should) also be offered up to OpenBSD.

What are we doing differently?

Modern Development Tools and Practices

- ▶ git
- ▶ GitHub, PR, issue tracker.

Modernize ToolChain

- ▶ jcv@ryu \$cc -v Bitrig clang version 3.6.0
(tags/RELEASE_360/final) 20150227

Less GNU

- ▶ Use libc++ and libc++abi instead of GNU libstdc++.
- ▶ Only one GNU tool in base (texinfo).
- ▶ And Perl, but that is GPL2, not GNU.

- ▶ Despite the last slide, not all of us are anti-GNU.
- ▶ I know and like RMS (and even have a gnu.org email address).
- ▶ But there is something nice about the extra consistency in base.
- ▶ And lots of people here probably consider less-GNU to be a good thing in and of itself.

Simplified Supported Platforms

- ▶ amd64
- ▶ arm
- ▶ aarch64 (64bit arm (sort of))

Why drop platforms?

- ▶ We like old computers too.
 - ▶ I still miss my Sun Ultra10.
- ▶ The world has moved on (and you can get support elsewhere).
- ▶ We don't need a ton of build infrastructure.
- ▶ We don't need to tailor default choices for old systems.
- ▶ We can have a consistent system compiler on all our platforms.
- ▶ More likely for a port to run on all our platforms.

New or Improved Features

- ▶ Lots of tmpfs work (replaces mfs, has snapshots, tmpfsrd).
- ▶ FFS2 for default file system, plus journal support (WAPBL) and booting capability.
- ▶ Thread-local storage (TLS) support.
- ▶ Support for UUIDs and xlocales in libc.
- ▶ Support for using GPT partitioned storage with an fdisk-like tool.

More

- ▶ Usability improvements in fdisk.
- ▶ USB boot image for amd64.
- ▶ ARM EABI + hard-float and improved armv7 SoC support.
- ▶ Fair kernel mutexes implemented using C11 atomic operations.
- ▶ ps(1): improved posix compliance and hierarchical output.
- ▶ Single snapshot target for src and xenocara.

Rust

- ▶ New systems programming language from Mozilla.
- ▶ Early work for it on OpenBSD and Bitrig was done on Bitrig.
- ▶ Bitrig builds as part of the normal buildbot builds.

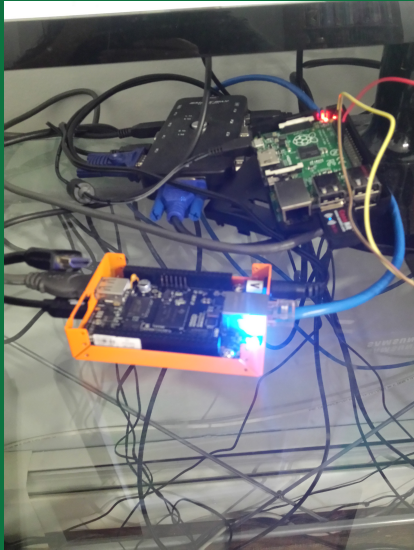
ARM!

- ▶ More ARM devices out there than any other arch (if you believe Wikipedia).
- ▶ The low power and embedded world is where things are going.
- ▶ Not all ARMs are created equal.
 - ▶ ARMv7 and above only.
- ▶ A lot of our devs are interested and working on ARM.
- ▶ NetBSD code has been helpful too.

Lots of ARM boards

Varying degrees of support.

- ▶ Beaglebone Black
- ▶ Raspberry Pi 2 B
- ▶ Pandaboard
- ▶ Nitrogen
- ▶ Cubieboard
- ▶ others?



Scaleway

- ▶ <https://www.scaleway.com/>
- ▶ Cloud SSD ARM Servers.
- ▶ Providing Bitrig with hardware to port to their C1.
- ▶ 4-cores ARMv7 CPU with 2GB of RAM.
- ▶ Hope to add to their official image options.

Getting Involved

- ▶ We want to make it easy to contribute.
- ▶ GitHub PRs.
- ▶ Still lots of low hanging fruit.
 - ▶ Ports that need modifying for Bitrig.
 - ▶ No one uses autoconf and friends properly.
 - ▶ If you are going to make a BSD, name it *BSD.
- ▶ We try to keep everything in the open and on irc.
- ▶ We care about code quality, but with less history, more of a chance to get code in.

Roadmap

- ▶ ARM MP support.
- ▶ Fine grained MP (get rid of biglock).
- ▶ Virtualization (bhyve, kvm, xen?).
- ▶ EFI support.
- ▶ More at <https://github.com/bitrig/bitrig/wiki/Roadmap>.

Getting In Touch

- ▶ Main form of communication is irc.
 - ▶ [irc.oftc.net](irc://irc.oftc.net)
 - ▶ [#bitrig](#)
- ▶ Also have mailing lists:
 - ▶ src@lists.bitrig.org
 - ▶ tech@lists.bitrig.org