

FreeBSD Foundation May 2016 Update



Dedicated to supporting the
FreeBSD Project and community

Upcoming Events

[BSDCan 2016](#)

June 10-11, 2016
Ottawa, Ontario, Canada

[USENIX ATC '16](#)

June 22-24, 2016
Denver CO

[Texas Linux Fest](#)

July 8-9, 2016
Austin, TX

FreeBSD Journal



The [March/April 2016](#) issue of the *FreeBSD Journal* is now available!

Don't miss articles on A Brief History of Fast Filesystems, Teaching Operating Systems with FreeBSD, and more.

New Feature! Browser-Based subscribers now have the ability to download and share PDFs of the articles!

Sample Issue! If you've ever wanted to read through an entire issue of the

Message from the Executive Director

Dear FreeBSD Community Member,

I think spring is finally winning over winter here in Colorado, and it's getting us in the spirit of preparing for our spring fundraising campaign! We accomplished a lot this past month, including continued work on the FreeBSD/arm64 port project, promoting FreeBSD at technical conferences, connecting with other open source community members, facilitating technical discussions with the community and commercial users, and working on our strategic plan. Take a minute to read about the work we accomplished this past month, and please consider making a donation to the Foundation so we can continue this work!

Deb

Development Projects Update

This month, I have a few different projects to report on. Building on the process-shared mutex work described last month, Foundation staff member Konstantin (Kostik)



Belousov committed an initial implementation of POSIX robust mutexes. A robust mutex is guaranteed to be cleared by the system if a thread or process terminates while the mutex is held. The next thread to lock the mutex is notified about the inconsistent mutex state and can execute (or abandon) corrective action. Process-shared and robust mutexes are used by a number of third-party software packages, which may have slower or less functional fallback support for operating systems that lack these mutex types. Part of this work included creating documentation for all of the internal kernel-userland interfaces used by FreeBSD's POSIX thread implementation, libthr. Kostik also committed more than a dozen improvements and bug fixes in the virtual memory (VM), virtual filesystem (VFS), and other kernel subsystems.

Staff member Edward Napierała committed some incremental improvements to recently-added features. This included the root filesystem mounting and "reroot" facility. The reroot functionality is now able to be used with NFS root filesystems. Edward also continued

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"Awesome! This is the best way to popularize FreeBSD!!" San Jose, California

"I've found it really practical, and great reading...it caters to all levels of users." Brooklyn, NY

Why Choose FreeBSD?



"The [pfSense@](#) project provides a free, Open Source distribution of FreeBSD, tailored for use as a firewall, router and VPN platform. The project is sponsored and run by Netgate and includes a long list of related features and a package system allowing the end-users to add even more functionality. From its beginnings a decade ago, pfSense has been based on FreeBSD. Our latest release, pfSense 2.2 is based on FreeBSD 10.1-RELEASE. Other parts of the pfSense system derive from the FreeBSD ports collection. Together with FreeBSD, these components have allowed Netgate and the rest of the pfSense community to build the pfSense platform into an system of security tools that secures the networks at over 250,000 locations. Like FreeBSD, pfSense is BSD licensed. This licensing has enabled other organizations including VMware and Avaya to adapt the pfSense source code into their commercial offerings. The BSD License allows us to both use and contribute code freely, and allows both our customers and the consumers of FreeBSD to do the

working on iSCSI, including enhancements to the iSCSI management tool, and some preparatory work for iSER offload support. He also added the ability to refresh the system's view of attached disk sizes, which is a very useful capability to have when running FreeBSD on a VM guest.

Grant recipient Andrew Turner continued working on improvements to the FreeBSD/arm64 port, on the path to bringing it to Tier-1 status. The dynamic tracing framework DTrace and performance monitoring system hwpmc are now functional and usable on arm64. The arm64 port now supports platforms that do not have cache-coherent I/O devices.

Andrew has also been updating the arm64 port to use newer versions of FreeBSD interrupt management and PCI bus functionality. Initial changes in support of this work have been committed. The rest of the implementation is in review and testing, and is still targeting the FreeBSD 11.0 release.

I have continued working on a few tool chain components. I updated FreeBSD's version of the ELF Tool Chain libraries and tools to bring in a number of bug fixes, broader architecture support, and improved input validation. I've also been prototyping an import of lld, the linker from the LLVM family of projects. While lld will not be a viable system linker in time for FreeBSD 11.0, it is making tremendous progress and should be capable of meeting all of our needs later in the FreeBSD 11 lifecycle. It runs significantly faster than our current linker, and will enable new functionality including link-time optimization (LTO).

-- contributed by Ed Maste

FreeBSD Goes to OSCON

Last week Dru Lavigne and I represented the Foundation and promoted FreeBSD at OSCON 2016 in Austin, TX May 17-19. We were fortunate again this year, to be selected for a free booth in the non-profit area. This was the first year that OSCON was in Texas, moving from years of being held in Portland, OR.



Check out our set up as we were getting ready for the Opening Reception on Tuesday night. We had a FreeNAS sign on one side and a pfsense on the other to promote other distributions based on FreeBSD. Groff the BSD Goat was there to help and even made friends with Hadoop.

same.

Netgate is a proud Silver Sponsor of the FreeBSD project. Without the FreeBSD community and the contributions of its members and benefactors, the pfSense project would not continue to thrive as it does today. Netgate is committed to giving back its bug fixes and enhancements and continuing its financial assistance of the FreeBSD project. We encourage anyone so-inclined to donate to the FreeBSD Foundation as well. Doing so helps to increase the evolution and the popularization of FreeBSD for everyone."

– Jim Thompson, Chief Technology Officer, [Netgate Inc.](http://www.netgate.com)



During the expo, we made connections with people from IBM, HP, Red Hat University Outreach, Salesforce, universities that use FreeBSD in their datacenters, and other open source projects and foundations. Some local and non-local FreeBSD contributors stopped by our booth.



Dru and I also attended the [Community Leadership Summit](#) which preceded the conference. The summit was a great opportunity to connect with other leaders from open source communities and find out how to make our communities strong. We participated in discussions on asking for money, engaging community members, getting students on board, growing the community, governance and leadership, and diversity.

Your donations help us pay for travel expenses, literature, and swag to help promote FreeBSD at open source conferences like OSCON.

-- contributed by Deb Goodkin

Faces of FreeBSD Series: Michael Lucas

Next up in the Faces of FreeBSD series reboot is Michael Lucas. You can find his



full interview on [the blog](#). Please take a minute and read more about Michael and stay tuned for future interviews with FreeBSD enthusiasts who are advocating for FreeBSD, improving and writing for FreeBSD, running conferences, and helping in other various ways.

-- contributed by Anne Dickison

Fundraising Update: Looking Forward

We started the month off running, following a productive all day board meeting here in Boulder. We began the meeting by taking a step back to discuss the purpose of the Foundation. After defining our "Why," we listed our current efforts, followed by what we want (or should) be doing. Our charter has always been to support FreeBSD, however, that doesn't specifically determine what we



should be supporting within the FreeBSD ecosystem. So, we spent the rest of the day determining where investing our limited resources will have the most positive long-term impact on FreeBSD. We identified the areas we believe we need to support to continue making FreeBSD relevant and the operating system of choice by companies, educational institutions, and individuals.

The consensus was to not only increase our support of strategic technical areas, but also to help improve the developer infrastructure and community development. Our goal is to enable the success of a diverse, mostly volunteer community of contributors, who continually produce a well thought-out, secure, reliable, and stable operating system.

This starts with additional FreeBSD promotion. Our community knows why FreeBSD is great. They know about the commercial vendors using FreeBSD in their products, and the universities doing research with FreeBSD and/or using it in their classes or data centers. However, many in the wider technical community are not aware of the prevalence of FreeBSD, whether directly or as pieces of FreeBSD technology within in other popular operating systems. We are working on promoting these use cases, and educating people on why they should use FreeBSD.

Once an individual or company becomes interested in using FreeBSD or contributing to the Project, we want to help make the path to getting started easier. This may include developing videos and how-to guides on Installing FreeBSD, How to Contribute Your First Patch, or How to Find a Mentor. We have a lot of ideas of what we can do to help. However, we need more funding to support these efforts.

We are 100% funded by your donations. With your donations we will be able to:

- Attend more open source and technical conferences to promote and give presentations on FreeBSD.
- Hire a full-time person to work on improving developer infrastructure.
- Develop FreeBSD workshops, trainings, and classes.
- Visit commercial users to help facilitate collaboration with the Project.
- Fund contributor events, hack-a-thons, install-a-thons, and other events to not only get new people involved in the Project, but also allow more current contributors to share their work and knowledge.
- Continue to provide on-time and reliable releases with a full-time employee.
- Provide staff for critical infrastructure work.
- Increase our advocacy work for the Project, including promoting the various FreeBSD distributions.
- Provide resources and support to design and implement a more modern and informative FreeBSD Project website.
- Facilitate technical discussions, mentor training, and FreeBSD contributor events.
- Provide resources for under supported areas in FreeBSD.

Your donation will allow us to invest in the future of FreeBSD. Join many individuals and companies like NetApp, Juniper, iXsystems, NetGate, VMWare, NetFlix and many more who see the value of the work we are doing. If you would like more information about what we are doing to help FreeBSD or want collateral to share with your management team, please contact me at [deb \(at\) freebsd.foundation \(dot\) org](mailto:deb@freebsd.foundation).

We can't do this without you! Please consider making a [donation](#) today!

-- contributed by Deb Goodkin

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