

FreeBSD Foundation October 2016 Update



Dedicated to supporting the
FreeBSD Project and community

Upcoming Events

[NYI Oktoberfest Happy Hour](#)

November 1, 2016

New York, New York

[USENIX OSDI '16](#)

November 2-4, 2016

Savannah, GA

[FreeBSD Developer and Vendor Summit](#)

November 10, 2016

Berkeley, CA

[MeetBSD 2016](#)

November 11-12, 2016

Berkeley, CA

[USENIX LISA '16](#)

December 4-9, 2016

Boston, MA

FreeBSD Journal



The [September/October 2016](#) issue of the *FreeBSD Journal* is now available! Don't miss articles on the FreeBSD 11 release, and more.

Message from the Executive Director

Dear FreeBSD Community Member,

Halloween is upon us, and October has passed in a blink of an eye.

Luckily for the Foundation, it's been a month full of treats and not tricks.

From the Release Engineering work to launch FreeBSD 11.0, to attending conferences aimed at recruiting more people to the Project, we've had a very productive month. As we head into prime giving season, please take a minute to see what we've been up to this month, and consider [donating](#) to the Foundation to help us continue our support of FreeBSD. We can't do it without you!

Deb

Development Projects Update

FreeBSD 11.0 is now released, and it marks a significant milestone in the FreeBSD/arm64 porting project. The project is a collaboration between the FreeBSD Foundation, Andrew Turner, and

the developers at Semihalf, supported by ARM and Cavium. FreeBSD 11.0 adds 64-bit ARMv8 to the list of supported architectures and includes installable release media to run on Cavium's ThunderX platform.



The Foundation acquired two ThunderX 1U servers for production use which are now included in the FreeBSD project's machine resources. Thanks to the effort of several members of the FreeBSD community, the ports build infrastructure gained arm64 support, and one of the Foundation-sponsored machines was dedicated to package building. This allowed FreeBSD/arm64 packages to be made available on release day. Over 20,000 third-party packages are now available.

The second production ThunderX machine is a reference platform for FreeBSD developers to port and test software to FreeBSD/arm64, and provides jails for both a FreeBSD 12 and FreeBSD 11 arm64 environment.

Andrew Turner continued with performance enhancements after FreeBSD

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 FreeBSD Journal, now's your chance. [Download](#) the sample issue and be sure to share with your friends and colleagues.

Not a subscriber? [Sign up](#) today!

See what others are saying about the Journal:

"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 [Crescent River Port Pilots' Association](#) is an organization comprised of 115 maritime pilots who pilot some of the largest ships in the world on the Mississippi River. The Association provides critical business and dispatch functions for its member pilots. Due to the complexity of piloting ships in a congested and treacherous waterway such as the Mississippi River, the cost associated with delaying or failure to provide timely pilotage service is unacceptable. Our decision to utilize FreeBSD stems from our past frustration with other proprietary operating systems. From the performance, security, uptime, community and open licensing of

11.0's release. These are being committed to the FreeBSD development branch, and where possible, will be merged back to the stable branch for FreeBSD 11.1. Improvements include transparent superpages, importing optimized assembly language string routines, and support for cryptography instructions.

The Foundation is currently investigating additional work that may be undertaken on the FreeBSD/arm64 port, and looking for potential collaborators and sponsors. Possible tasks include enabling additional software ports, adding 64-bit Linux emulation, adding 32-bit FreeBSD/arm support (AArch32), and enabling bhyve host virtualization support.

Ongoing work in the FreeBSD community is targeting additional low-cost ARMv8 platforms, including the Raspberry Pi 3 and Pine64, making it easier for developers and users to explore FreeBSD on 64-bit ARM.

-- contributed by Ed Maste

Fundraising Update: This One Goes to 11 *



There are certain generational jokes we cannot avoid. For those of us who grew up with, or at least have seen, the film *This is Spinal Tap*, the number 11 always elicits the line that is the title of this month's letter.

The 11th major release of FreeBSD is now out and John Baldwin covers what is new and exciting in 11 in his article in the latest issue of the FreeBSD Journal. Making 11 major releases

of a complete operating system over a span of 23 years is a major achievement.

Thousands of fingers have touched the docs, ports, and source trees over the years, and even more have consumed, repurposed, and deployed the code onto desktops, servers, laptops, and embedded systems. Getting to where we are today is nothing short of amazing to those of us who continue to work on FreeBSD. This is why I want to take a slight departure from my typical letter to talk about a particular set of folks who are working to help the FreeBSD Project and need your help.

Most readers know that the FreeBSD Journal is supported not only by your subscriptions, but largely by the FreeBSD Foundation, of which I am one of the directors. I joined the board of the FreeBSD Foundation because I knew that I could apply my nontechnical skills to help the FreeBSD community in ways that engineers might not normally do, including producing this magazine, the production of teaching and marketing materials, and fundraising. It is on the fundraising front that I wish to talk to you here.

The FreeBSD Foundation exists to support FreeBSD through the funding of many different parts of the FreeBSD ecosystem. We give direct financial support to BSD-related conferences, including AsiaBSDCon, BSDCan, EuroBSDCon, and many newer conferences that you might not have heard of as yet. In addition, the Foundation sponsors the growing number of developer

FreeBSD, there are simply no other viable alternatives for us. The Association utilizes FreeBSD natively, as well as, in its other derivative forms such as TrueNAS and pfSense. In closing, we salute the FreeBSD Community and the FreeBSD Foundation for all their work, dedication, and contributions."

– Capt. Scott Loga, Vice-President, [Crescent River Port Pilots' Association](#)

summits held throughout the year. Although many have predicted that the Internet and associated technologies would reduce the need for face-to-face meetings, that turns out to have been false. In fact, much of the best work being done on FreeBSD begins at these developer meetings.

The Foundation employs engineering resources—from the head of release engineering, to the full-time, and contract staff who fill the technical holes in our software firmament not otherwise being filled in by the community. This support allows for the timely, stable, and reliable releases you have come to expect. The Foundation has also hired a full-time marketing director to help the Project reach those who have yet to learn how great FreeBSD is, and to help the community grow.

Finally, the Foundation funds much of the hardware on which the Project now runs. Whether that is release builds, package servers, or the growing continuous integration infrastructure, the Foundation has been here to provide the hundreds of thousands of dollars required over the last several years to make sure that the software produced by the community can easily and efficiently be consumed by the entire world.

Unlike in the Linux world, the FreeBSD Project is completely open. Anyone is welcome to join and there is no tax levied by the FreeBSD Foundation to attend events such as developer meetings or vendor summits. Unfortunately, that openness has a downside. As the FreeBSD Project has grown, so have its needs, and that means that the Foundation is always in fundraising mode. Although I could appeal to each and every one of you to send a donation to the Foundation, that is not what the final paragraph of this letter is about.

I know many of you work in technology companies. Quite a few, and I'm assuming the majority of you, work at companies that use FreeBSD every day in some capacity. This is where we need you. Help us by figuring out how to connect the FreeBSD Foundation to the companies you work with, or know of, that have an interest in the continuing success of FreeBSD. Whether it is through [me](#) directly, or with the Deb, the [Foundation's Executive Director](#), those connections are absolutely necessary to the continuing success of both the FreeBSD Foundation and the FreeBSD Project.

I know that what I'm asking may not come naturally to those who work in the trenches of engineering. "Talk to management?! That's the last thing..." and so we have a few suggestions on this [web page](#) of how you might start that conversation.

Thank you!

-- contributed by George Neville-Neil

**This article originally appeared in the September/October 2016 issue of the FreeBSD Journal*

Conference Report: Grace Hopper 2016

I recently returned from the Grace Hopper Celebration of Women in Computing Conference, which took place in Houston, Texas, October, 19-21. The Foundation was a Silver Sponsor. and the event was comprised of 15,000 attendees, mostly women in

tech, with “only” 1,000 men. I think it’s the only tech conference that I’ve attended where there is a line for the women’s restrooms.

This conference was amazing! First, having that many women in computing at one venue was phenomenal. Second, the selection of talks and tracks was impressive. They had talks on careers in tech, cutting edge products and technologies, and then a full day of open source presentations.



Dan Langille helped staff the booth and gave a presentation on “[Contributing to Open Source](#)”, which was well attended. The Foundation provided Dan with a travel grant to help him with his travel expenses.

Our main purpose for attending this conference was to recruit more people to the Project and to promote teaching about FreeBSD in universities. We stressed not only the importance of gaining experience before getting a job, but also how you can gain marketable job skills by contributing to the FreeBSD Project. We had a lot of students stop by our table to discuss both how to get involved in the Project and the intern opportunities through the Google Summer of Code program.

I was impressed by the number of students who walked up to our table with their hands extended to introduce themselves and ask about FreeBSD. Granted, the Expo Hall where we were stationed, was really a large job fair, and the assumption was that we were hiring. We told them right away that we weren’t hiring, but that there were many companies looking for skills and experience that contributing to the FreeBSD Project provides. We’d then get in long discussions about the work the attendees were doing, whether it was undergraduate, graduate, or a job in the tech industry. Many of the students I talked to were doctoral candidates in cyber security. I told these students about the work that Robert Watson and his team are doing at University of Cambridge, and some of them were familiar with his work.

Many universities were represented at the conference, which gave us the opportunity to talk to a lot of professors. We directed them to the TeachBSD.org website and encouraged them to include FreeBSD in their operating systems classes, from including one slide on FreeBSD, to teaching a whole operating systems class with FreeBSD. We gave teaching FreeBSD information to more than 20 universities, including three here in Colorado. We also discussed getting FreeBSD in their computer labs, so students could try out the OS.

Universities provide so many opportunities to educate students about FreeBSD. We talked to students and professors about the Google Summer of Code program; the How-To documents for user groups and

hackathons, and all of the other resources we have on our website; and of course, the FreeBSD Handbook, for detailed information about the operating system and how to get involved as a user or contributor.

This was our third year attending this conference, and I'm still amazed at how many attendees stop by our table to see what we are about, even when we are competing with the humongous booths by the large companies, with their fun give-aways. I estimated that we handed out almost 300 Getting Involved in FreeBSD fliers, 100s of GSoC fliers, and probably 700 FreeBSD stickers.

Not only did we talk to 300-400 attendees about FreeBSD, but with 15,000 people who walked by our table, there are now that many people who have at least seen the word FreeBSD!

Reasons that I believe attending this conference is a good investment for FreeBSD:

1. Largest group of students, studying computing fields, that would benefit by getting involved in FreeBSD.
2. Largest number of professors teaching computing, and would benefit their students, themselves, and the tech ecosystem, by teaching about FreeBSD.
3. As a result of the above, this is our largest opportunity to increase the number of contributors to the Project and give companies a bigger recruiting pool.
4. Opportunities to make connections with people who work at Google, Microsoft, Amazon, Apple, and other companies that we want to collaborate with.

It is an expensive conference for us to attend, and we can only continue attending conferences like this with your donations. I had an opportunity to talk to Dr. Telle Whitney, CEO and President, of the Anita Borg Institute to tell her how beneficial this conference is to women around the world. I also mentioned how this was probably going to be our last year there, because the cost is too high for a non-profit like ours and it's increasingly becoming difficult for me to justify the expense.

She said she'd bring that up to her team and asked that I email her about this too. Not only will I email her, but I'll also tell her why they benefit by having us there. In addition, the Foundation team will continue to identify other conferences, better suited to our funding model, that still offer us opportunities to reach out to students and professors to get involved in and use FreeBSD.

In the end, our voices were hoarse, and we were exhausted, but there are now hundreds of new people who know about FreeBSD!

Please consider making a donation, so we can continue attending conferences like these to recruit more people to the FreeBSD Project and get more teachers including it in their curriculum!

-- contributed by Deb Goodkin

Help Promote FreeBSD: Speak at an Event



Presenting about the work you're doing with FreeBSD is a great way to get feedback on your work, while showcasing FreeBSD's capabilities. As the 2017 conference season rolls around, there are many opportunities to submit talks about FreeBSD. From ScaLE to OSCON, and beyond, check out what conferences are looking for, to see how attendees could benefit from your experiences. You can find some of the upcoming [calls for participation](#) on our event calendar. If you are interested in giving a talk, but not sure where to start, [contact us](#) so we can help. If you have a CFP you'd like to have listed, please email marketing@freebsd.foundation.org.

-- contributed by Anne Dickison

Conference Report: EuroBSDCon 2016

One of the key areas we support for the FreeBSD Project, is sponsoring BSD-related conferences. This year we were proud to be a Gold Sponsor of [EuroBSDCon 2016](#), which took place September 22-25, in Belgrade, Serbia. We also sponsored the FreeBSD Developer Summit that preceded the conference.

These conferences provide face-to-face opportunities for FreeBSD contributors to work together on projects, learn more about different areas of FreeBSD by attending presentations and tutorials, and discuss new ideas and methods to improve software, tools, processes, and documentation.



From the Foundation, I attended along with Philip Paeps (EuroBSDCon Organizer), Benedict Reuschling, George Neville-Neil, Hiroki Sato, and Kirk McKusick.

Foundation Board members led a number of events, including:

- Benedict Reuschling organized and ran the developer summit.
- Kirk McKusick taught his two-day [Introduction to FreeBSD](#) tutorial.
- George Neville-Neil taught a tutorial on [Tracing FreeBSD for DevOps and Developers](#).
- Philip Paeps helped organize the conference.

The conference was held at the Radisson Blu hotel in Belgrade, Serbia. I always like it when the conference is located in the hotel I'm staying at. It makes everything so much easier. The hacker lounge was perfectly located in the hotel lobby, where everyone could easily find each other.

However, with the hotel being a ~50 minute walk from the restaurants, we wouldn't even start our work in the hacker lounge until 11PM!

During the Developer Summit, I gave a short presentation on the work we are doing to support FreeBSD, and was then joined by Benedict and Hiroki for a Q&A session.

The social event was held the Friday before the conference. The organizers had planned a private light rail car to take attendees to the venue, which was in an old, but beautiful fort. A small group of us chose to walk. That was quite an adventure, because we couldn't figure out how to get to the venue. It probably took us 90 minutes to get there, but then again, it gave us more to talk to other BSD contributors.

The conference opened with George Neville-Neil, giving the keynote presentation on "The Coming Decades of BSD."

To help with our initiative to make the FreeBSD Project more diverse, I worked with three ACM-W Europe council members to run a BoF on "Increasing Diversity in the BSDs." During last month's womENCourage, we met to develop case studies that were relevant to our community. I'm pleased to report that we had a full room for our BoF, allowing attendees to break up into three groups to work on the case studies, and then present their cases and solutions at the end.

The ACM-W team was also happy with the turnout and enthusiasm from the attendees. Some of the participants asked if we could continue this at other BSD conferences, so we've submitted a request to run this session at MeetBSD. If you are attending this conference, please vote for our session!

We want to extend a big thank you to Netgate who donated two MinnowBoard Turboto for us to raffle off to donors at the conference. Their generosity helped us raise \$1,882 over the two day period!

We also recognized four FreeBSD contributors who have made significant contributions in various areas to help FreeBSD. The people we recognized were:

- Andy Turner for his work on the ARMv8 architecture port and Raspberry Pi ports.
- Li-Wen Hsu for his work on FreeBSD's Jenkins continuous integration system and testing.
- Brooks Davis for his work on the toolchain and BERI/CHERI CPU.
- Bernard Spil for his work on LibreSSL and OpenSSL in ports and across projects.

We gave travel grants to Oyediji Oladipupo, Niclas Zeising, and Kamil Czekirda to attend the conference. We've published some of their trip reports [here](#).

Finally, I want to give a big shout out to the organizing committee, who organized this conference remotely. Unlike, the other EuroBSDCons

that have a local BSD organizing committee, this was all done outside of Serbia. Thank you to Beat Gatz, Philip Paeps, and Henning Brauer, who were always available to handle anything that came up. Whether it was changing the name of the BoF at the last minute and printing fliers to promote the BoF, to making sure everything ran smoothly, you guys did an awesome job!

Next year, EuroBSDCon will be held in Paris, France. We hope to see you there!

-- contributed by Deb Goodkin

**photo courtesy of Ollivier Robert*

Update from Release Engineering

With the FreeBSD Release Engineering Team and FreeBSD Security Team, finalized the 11.0-RELEASE cycle, announced October 10. Overall, this release cycle went exceptionally well, despite a few last-minute items that needed to be addressed, leading to a delay in the final release.

-- contributed by Glen Barber

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