Dedicated to supporting the FreeBSD Project and community

Upcoming Events

OSCON 2016
May 16-19, 2016
Austin, TX

BSDCan 2016
June 10-11, 2016
Ottawa, Canada

FreeBSD Journal

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

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Message from the Executive Director

Dear FreeBSD Community Member,
It's officially spring here at Foundation headquarters and the team is feeling the renewed energy that comes with a new season. The Foundation team held its first ever staff retreat and it's been a great opportunity for the team to work together in person solving organizational challenges and coming up with new ideas for supporting the Project. This month also brought about the release of the latest issue of the FreeBSD Journal and the launch of a sample issue to share with your colleagues. These are just a few of the things we've been working on over the past few weeks. Please take a moment to see what we've been up to and thank you again for your continued support of the Foundation and the Project.
Deb

Development Projects Update

Foundation staff members and project grant recipients made progress on many projects through the month of April.

Grant recipient Andrew Turner continued working on the FreeBSD/arm64 port, committing 4-level page table changes to support machines with larger memory sizes. This work is also a prerequisite for superpage support on arm64, which will enable a performance increase. Andrew is also migrating the arm64 platform and device drivers to the INTRNG updated interrupt framework, and ensuring that DTrace is functional and stable on arm64.

Grant recipient Bjoern Zeeb continued integrating VNET (network stack virtualization) changes from the project branch into FreeBSD-HEAD so that they will be available in FreeBSD 11.0.

Konstantin (Kostik) Belousov continued working on pthread improvements. Kostik completed and is testing a robust mutex implementation, building on recent changes to implement process

Why Choose FreeBSD?

NeoSmart Technologies
connecting ideas

"At NeoSmart Technologies, we don't build just applications on top of the operating system – we build applications for the OS itself. Our Easy Recovery Essentials® line of bootable system repair CDs is used by thousands of end users, IT professionals, and system administrators around the world on a daily basis to detect and correct where possible issues with the users' hardware, boot configuration, operating system, and applications in a safe, stable, and reliable manner.

Easy Recovery Essentials was purposely written in a mix of (mostly) cross-platform C/C++, a dusting of assembly, and an html user interface in order to allow us to evaluate different "host" platforms to boot and run our software on hundreds of thousands of different PCs — decades old and breaking-edge new — from all the various manufactures and OEMs. Unlike deploying an operating system on servers in a datacenter or in the cloud where the hardware is fully under your control, we actually needed something that would reliably run, GUI and all, on end-users' hardware with minimal issues... a tall order.

After trialling both Windows® PE and various Linux distributions in production for several years, we found that only FreeBSD offered a rock-solid, open, well-architectured, and cohesive platform at the lowest level upon which we could reliably base our software

shared mutexes. In the course of this work he also identified and fixed some outstanding bugs elsewhere in the pthread library.

Kostik is also continuing to test the in-review address randomization patch so that we can ship an implementation in FreeBSD 11.0.

Foundation staff member Edward Napierała committed an implementation of RCTL resource limits to control filesystem throughput. The change makes it possible to add RCTL rules for read bytes per second (BPS), write BPS, read I/O operations per second (IOPS), and write IOPS. It adds a throttling mechanism to slow down responsible processes when a limit would be exceeded. Edward also continued working to update and integrate iSCSI offload work in progress.

-- contributed by Ed Maste

FreeBSD Test Cluster Updated

At the end of 2015 we undertook a major upgrade of the FreeBSD test cluster at Sentex. We have replaced some of the older boxes (bears and hydras) with PCI-3 capable boxes (mercat class). The new boxes were all paid for by the FreeBSD Foundation.

We needed to upgrade to PCI-3 so that we could full utilize newer cards such as those that were donated by Mellanox. These 100G NIC cards are now being used for testing in the Test Cluster and are connected via a 100G switch, also donated by Mellanox.

The FreeBSD Foundation also paid for the upgrade of our central build and NFS server in the Test Cluster, bringing it up to a best in class system, with 40 cores, 256G RAM and 8T ZFS RAID system capable of building the entire system and kernel from scratch in about 27 minutes, and new kernels in under 5 minutes enabling for rapid turnaround when trying out new features or integration testing merges on the stable branch of development.

For the rest of this year we'll be building up more storage related test systems, with integrated NVME, so that we can benchmark and improve our storage systems, ZFS and UFS.

-- contributed by George Neville-Neil

Faces of FreeBSD Series: Kris Moore

Next up in the Faces of FreeBSD series reboot is Kris Moore. You can find his full interview on the blog. Please take a minute and read more about Kris and stay tuned for future interviews with FreeBSD

and expect it to "just work" for almost all of our customers, everywhere, all the time. The logical and centralized-yet-modular codebase makes it easy to understand how the operating system works and to extend it with the functionality we need without breaking things, allowing us to focus on developing our product rather than resolving issues with the bootable host environment.

Last but not least, FreeBSD's completely free, no-strings-attached licensing model let us incorporate and take advantage of FreeBSD as we saw fit without needing a team of lawyers to tell us whether or not we could use FreeBSD to do amazing things – and made it easy for us to simply contribute virtually all of our improvements, ports, integrations, and bugfixes right back to the community under the same, open license we obtained them under in the first place.

For us, sticking with and continuing to support FreeBSD is a no-brainer. We are proud to sponsor FreeBSD every year, and readily recommend it "hands down" when asked for our recommendation for a fast, battle-tested, and reliable platform."

– Mahmoud Al-Qudsi, NeoSmart Technologies

enthusiasts who are advocating for FreeBSD, improving FreeBSD, writing for FreeBSD, running conferences, and helping in other various ways.

Hosting Partner Spotlight: NYI - At the Heart of FreeBSD

As a long-term NYI partner, FreeBSD first deployed its East Coast mirror at NYI's data center in 2012 and hasn't looked back. NYI (www.nyi.net), a managed IT solutions provider, is owner and operator of enterprise-grade data centers in NY and NJ. With its hands-on approach, NYI has helped FreeBSD experience improved capabilities and higher performance.

The East coast mirror at NYI's 999 Frontier is also notable because it is a significant upgrade of the FreeBSD Project's infrastructure. It offers the following advantages:
• Provides dual-configuration so that experimental vs. production runs can be separated out, allowing changes to the ports system to be evaluated continuously rather than interrupting production flow
• Deploys to multiple sites, providing resiliency in the event of a failure
• Provides build capacity required to support continuous ports upgrades needed for binary packages, while maintaining ports-stable regression testing

"NYI has been instrumental in keeping things running smoothly for us, while offering us the benefit of their flexibility and expertise," commented George Neville-Neil, Board Member of the FreeBSD Foundation. "Having actual FreeBSD Systems Administrators on staff 24x7x365 is very unique for a datacenter, cloud and managed services provider. This offers unmatched capabilities for FreeBSD and *nix users and makes things run incredibly smooth."

Main Benefits of East Coast Mirror:
• Enterprise-grade redundancy and reliability for project infrastructure
• Reduced latency during heavy download times
• Load-balancing between coasts
• Up-to-date backups of all project data synchronized via high-speed connections
• Ability to move services between sites when doing scheduled maintenance
• Improved FreeBSD package building for end-users
• IPv6 kernel and package build infrastructure

"FreeBSD has been a critical component of everything we do," said Phillip Koblence, VP Operations, NYI. "We look upon our work with FreeBSD as our way of giving back to a community whose open source projects have enabled us to craft customized solutions for our customers from the inside out."

NYI offers colocation, managed services, managed hosting, disaster recovery solutions and cloud computing. Marked by 100% uptime, NYI facilities are SSAE-16, HIPAA and PCI compliant and offer 24x7x365 onsite support. To sign up to receive NYI's latest news and updates, please visit http://www.nyi.net/newsletter/

For more information on NYI's enterprise grade infrastructure services, please visit www.nyi.net.

FreeBSD Journal Sample Issue Now Available!

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.

Fundraising Update: Omitting Words

I'm sitting in our new Foundation office, here in Boulder CO, with most of my team for our first ever staff retreat. This has been a great opportunity to work face-to-face on team building, work on areas of improvement within the Foundation, and understand each other's strengths to work together more efficiently and cohesively.

Five of our board members will be joining us at the end of the week to work on strategic planning for not only next year, but also 3 years out and 10-20 years in the future. We are at a pivotal point in our support for FreeBSD. Now is the time for us to make a bold move and invest towards making FreeBSD a more compelling open source project for new people to get involved with, while making FreeBSD the platform of choice for research, commercial products, and education. Additionally, we want to help make it easier for new people to get involved in FreeBSD and make it "just work" in many more applications.

Your donations large and small will allow us to invest in the future of FreeBSD. Companies such as NetApp, Juniper, NetFlix, iXsystems, NetGate, VMWare and many more already see the the value of giving back. We are working on reaching out to other companies benefiting from FreeBSD who currently aren't giving back, and need your help connecting us with these companies, promoting their use of FreeBSD, and helping us promote the value of donating to the Foundation.

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

-- contributed by Deb Goodkin