NAME

Jonathan Perkin - systems engineer and software developer

SYNOPSIS

jperkin [**--hire**] **-e** jonathan@perkin.org.uk

DESCRIPTION

Jonathan brings more than two decades of experience porting software and debugging issues across kernel and userland. He has worked extensively in unfamiliar codebases written in many different programming languages, across a wide variety of operating systems and toolchains.

With well over **5,000** commits to pkgsrc, he has ported hundreds of open-source projects, delivered significant performance and reliability improvements to pkgsrc itself, and been the primary author and maintainer of core packaging tools.

He also has a passion for automation, systems administration, and tooling. While not opposed to the occasional quick hack when required, he strives for well-engineered solutions and clean, portable code with high-quality comments and documentation.

EXAMPLES

Recent OS internals work includes:

- illumos#17880 delivers a **16x** performance improvement to the CTF tools on illumos
- SmartOS#8556 fixes a bhyve UART issue in virtualised guests
- illumos#17890 fixes illumos `wait4()` thread rusage calculations

One of his most recent developer tooling projects is bob, a modern Rust program that enables developers to build packages automatically inside clean sandboxes across many different operating systems. It also enables high-performance automated daily builds and reporting to provide fast feedback on changes that might cause unexpected regressions.

His curiosity about how things work extends to projects such as his four-part blog series on powering an 8-bit CPU using Node.js and spending his Christmas holidays porting Oxide Computer's Hubris microcontroller kernel to RISC-V and ARMv6.

He also likes documenting and sharing his work, such as:

- MDB support for Go
- DTrace and flamegraph analysis to improve pkgin

HISTORY

Senior Software Engineer, MNX / EdgeCast (2022 — Present)

- Owner of pkgsrc.smartos.org, a cross-platform binary package repository serving millions of package downloads per year
- Delivered many improvements to pkgsrc, NetBSD's cross-platform package manager
- Wrote modern Rust tools such as bob and mktool to replace legacy C and shell tooling
- Maintained and developed pkgin, delivering significant reliability fixes and performance improvements of up to **2,000x**
- Contributed to development of SmartOS and Triton, a complete, open-source operating system and cloud platform

Staff Engineer, Joyent / Samsung (2012 — 2022)

- Maintainer of pkgsrc.joyent.com (previous version of pkgsrc.smartos.org)
- Ported hundreds of open-source projects to illumos
- Implemented signed packages and significantly improved the pkgin package manager

- Improved debuggability of third-party software on illumos by integrating CTF support
- Contributed to development of SmartOS and Triton

Principal Member of Technical Staff, MySQL / Sun / Oracle (2007 — 2012)
- Team lead for Release Engineering of all MySQL products
- Development of the internal Python CI/CD system "PushBuild"
- Personally responsible for migrating MySQL 5.5 and related products to PushBuild
- Cross-platform OS development and support
- System administration for large build clusters

Senior Engineer, British Broadcasting Corporation (2001 — 2007)
- Promoted in his final years to small root@bbc.co.uk team responsible for firewalls and production-critical internet services used across the BBC
- Personally delivered SMTP improvements reducing incoming spam by **500,000** emails per day
- Before that, engineered and operated all public-facing bbc.co.uk infrastructure
- Developed new JumpStart architecture and rolled out large Solaris 9 / Apache 2 upgrade
- Customer-focused support, wide-ranging systems administration, and software development

Systems Administrator, Netcraft (2000 — 2001)
- FreeBSD and Solaris systems administration for all netcraft.com servers
- Windows and general office support

SEE ALSO

Developer, The NetBSD Foundation (2003 — Present)
- Primarily works on pkgsrc, but also occasional work on NetBSD itself
- Served on the pkgsrc core team **2014 — 2020**

COMPATIBILITY

The following lists are non-exhaustive and ordered alphabetically:
- **Operating systems**: AIX, FreeBSD, HP-UX, i5/OS, illumos, Linux, macOS, NetBSD, OpenBSD, QNX, Solaris, Windows
- **Programming languages**: Assembly (ARM, RISC-V, x86), awk, C, C++, Go, JavaScript, Lua, Perl, PHP, Python, Ruby, Rust, Shell, SQL, Tcl

STANDARDS

High.

ENVIRONMENT

Performs optimally when paired with running ultramarathons, playing the piano, hacking coffee machines, and taking on increasingly ambitious DIY projects.

Jonathan has worked from home very effectively for the past 19 years, but now that his children are growing up he is becoming more amenable to hybrid or in-person roles.

CONTACT

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BUGS

Many. Known issues include perfectionism, over-engineering, and a limited L1 cache.