

QEMU STATUS REPORT

ALEX BENNÉE

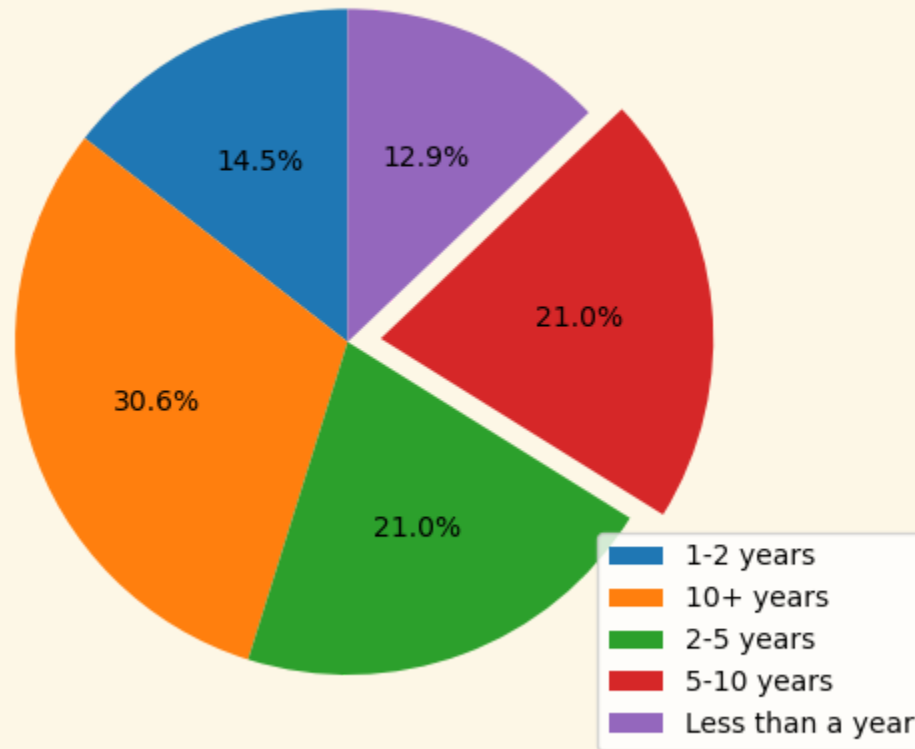
KVM FORUM 2022

INTRODUCTION

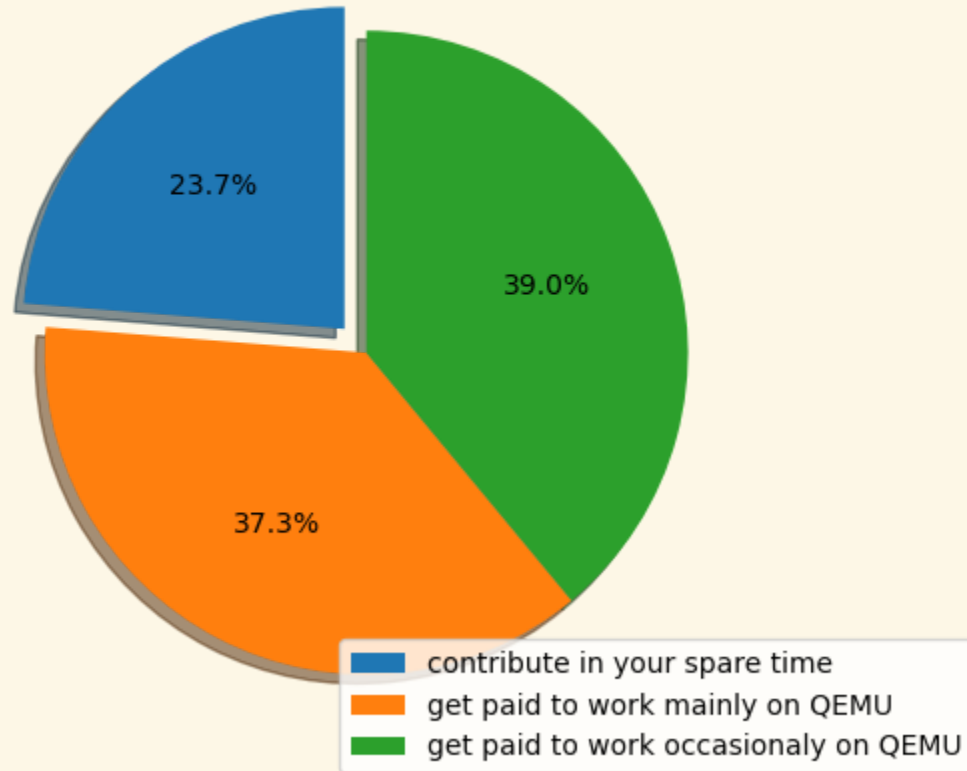
WHO AM I

- Alex Bennée
- Senior Virtualisation Engineer @ Linaro
- IRC: stsquad
- Testing, TCG, Plugins, gdbstub
- 9 years working on QEMU

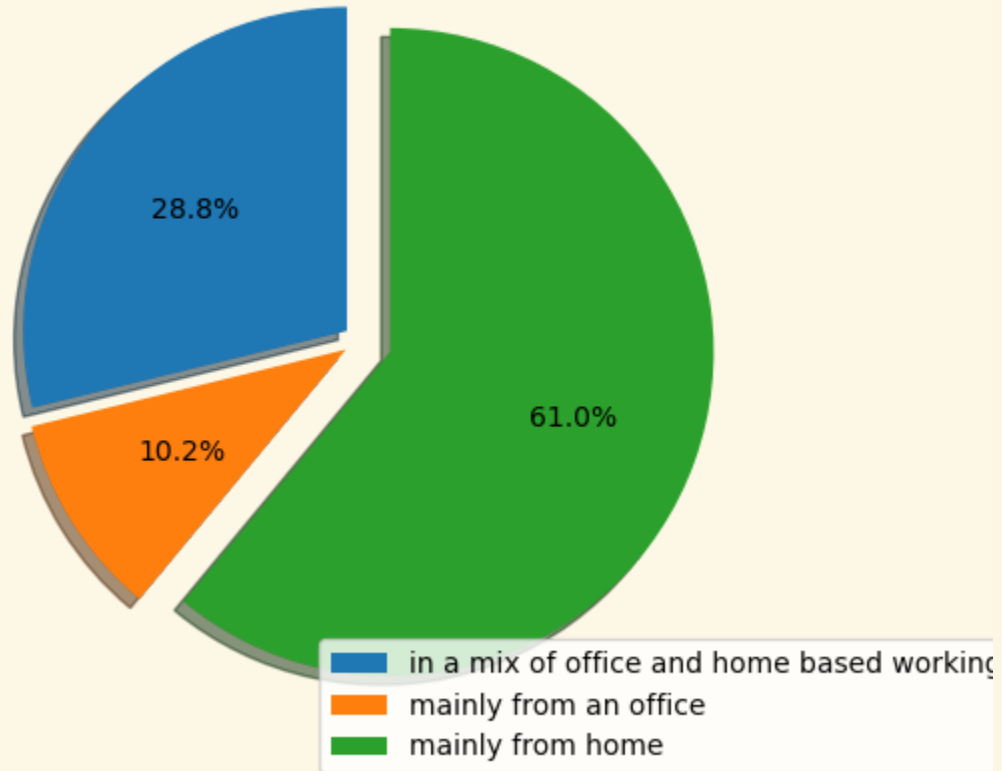
WHO ARE THE DEVELOPERS



WHY ARE THEY DEVELOPERS



WORKING HABITS

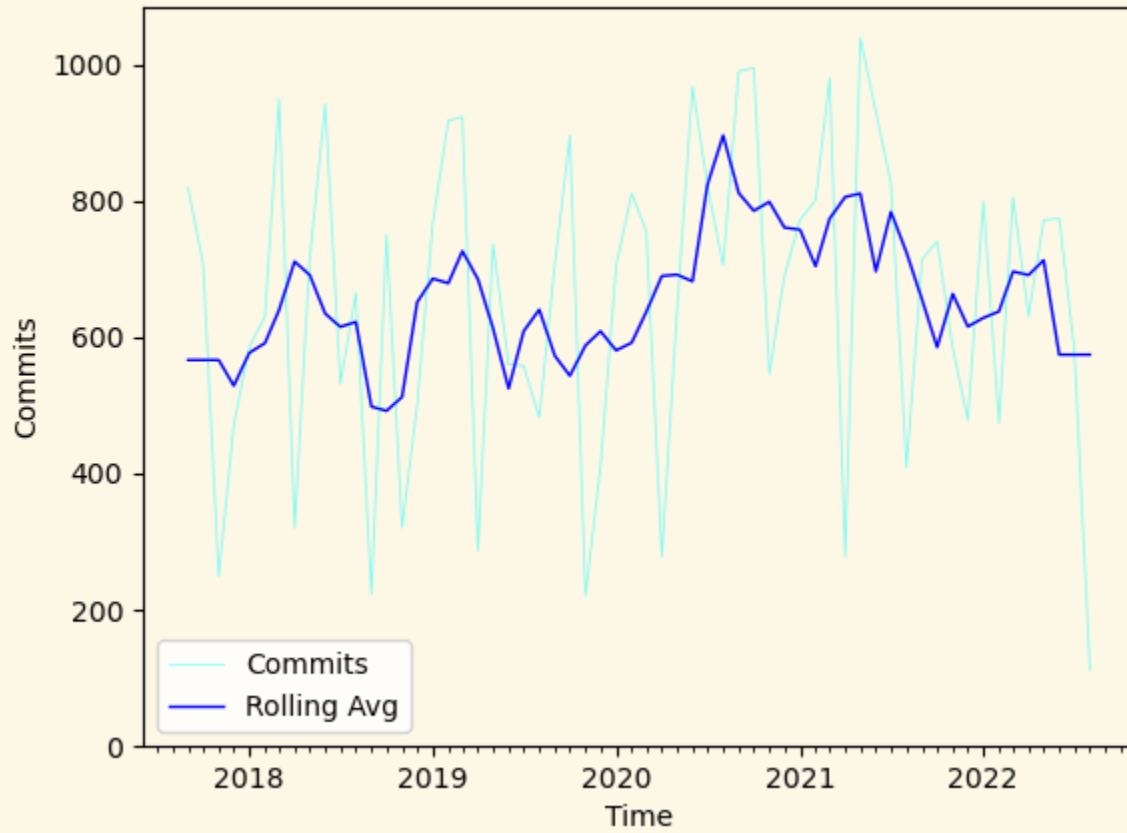


LAST YEAR OF CODE

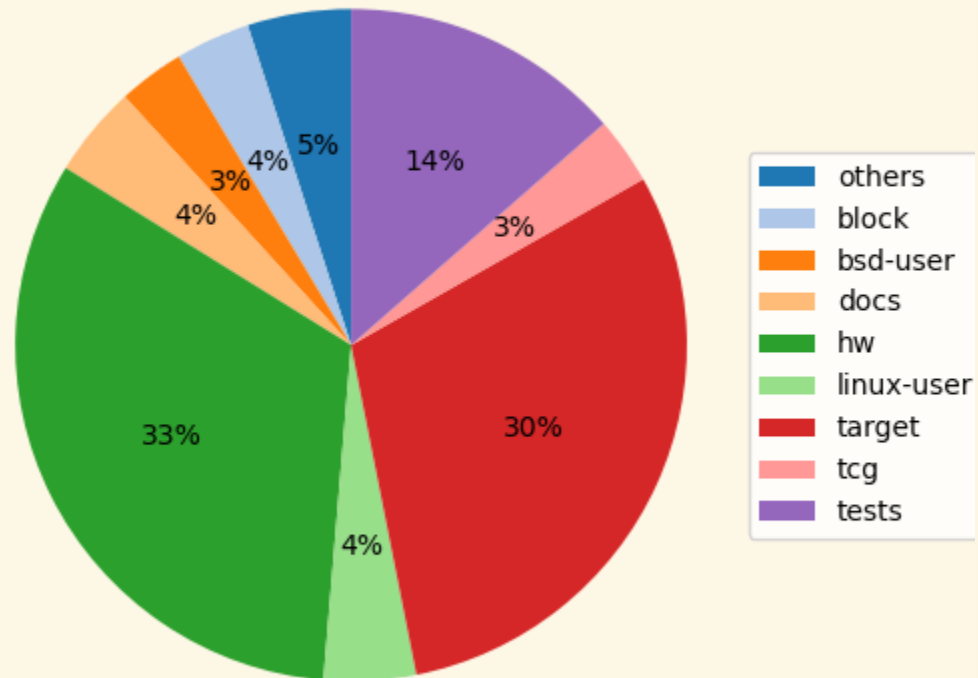
TOTALS

- 7516 commits
- 511 pull requests
- 435 developers

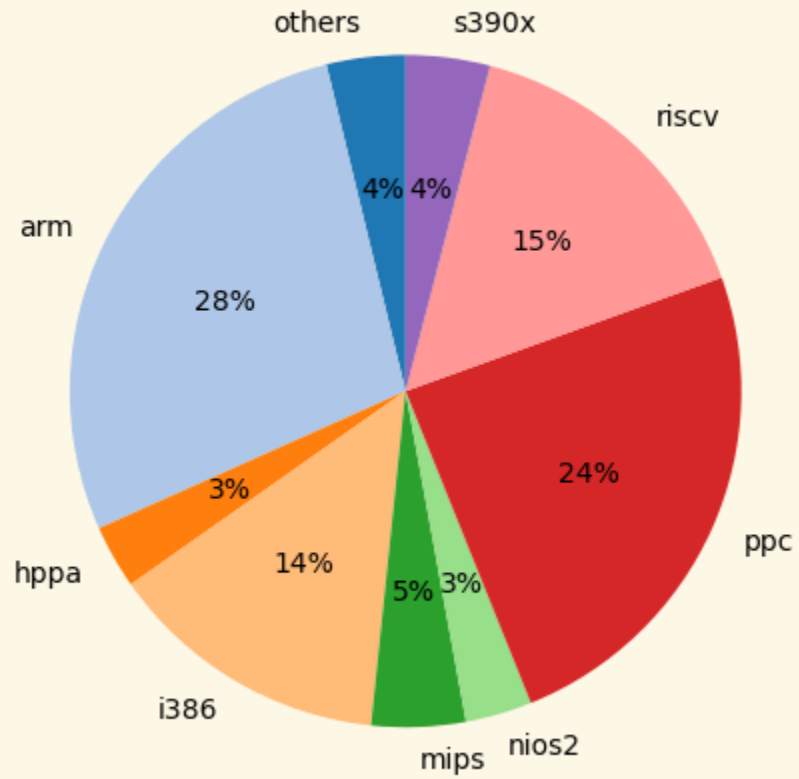
LAST 5 YEARS



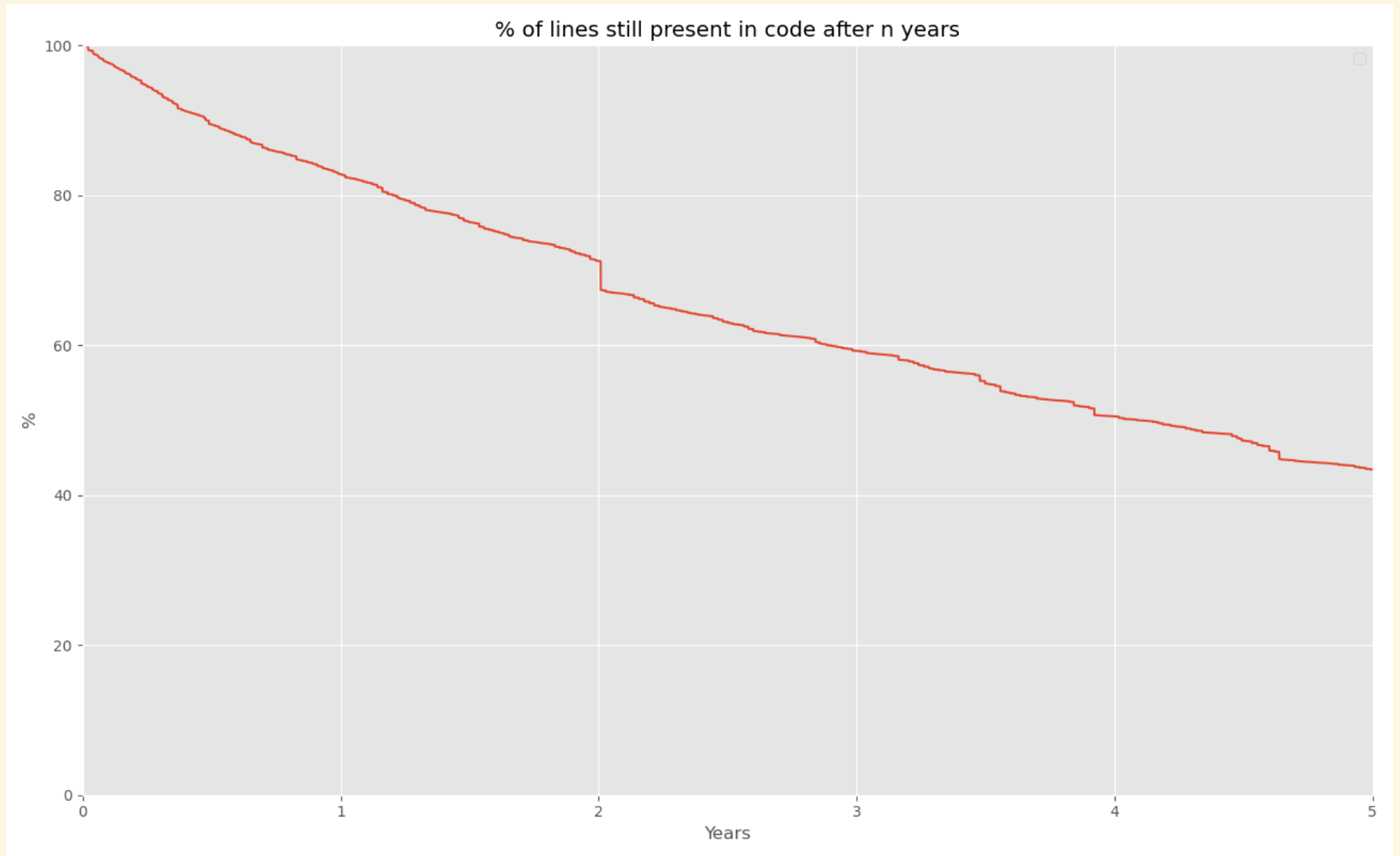
MOST ACTIVE SUB-SYSTEMS



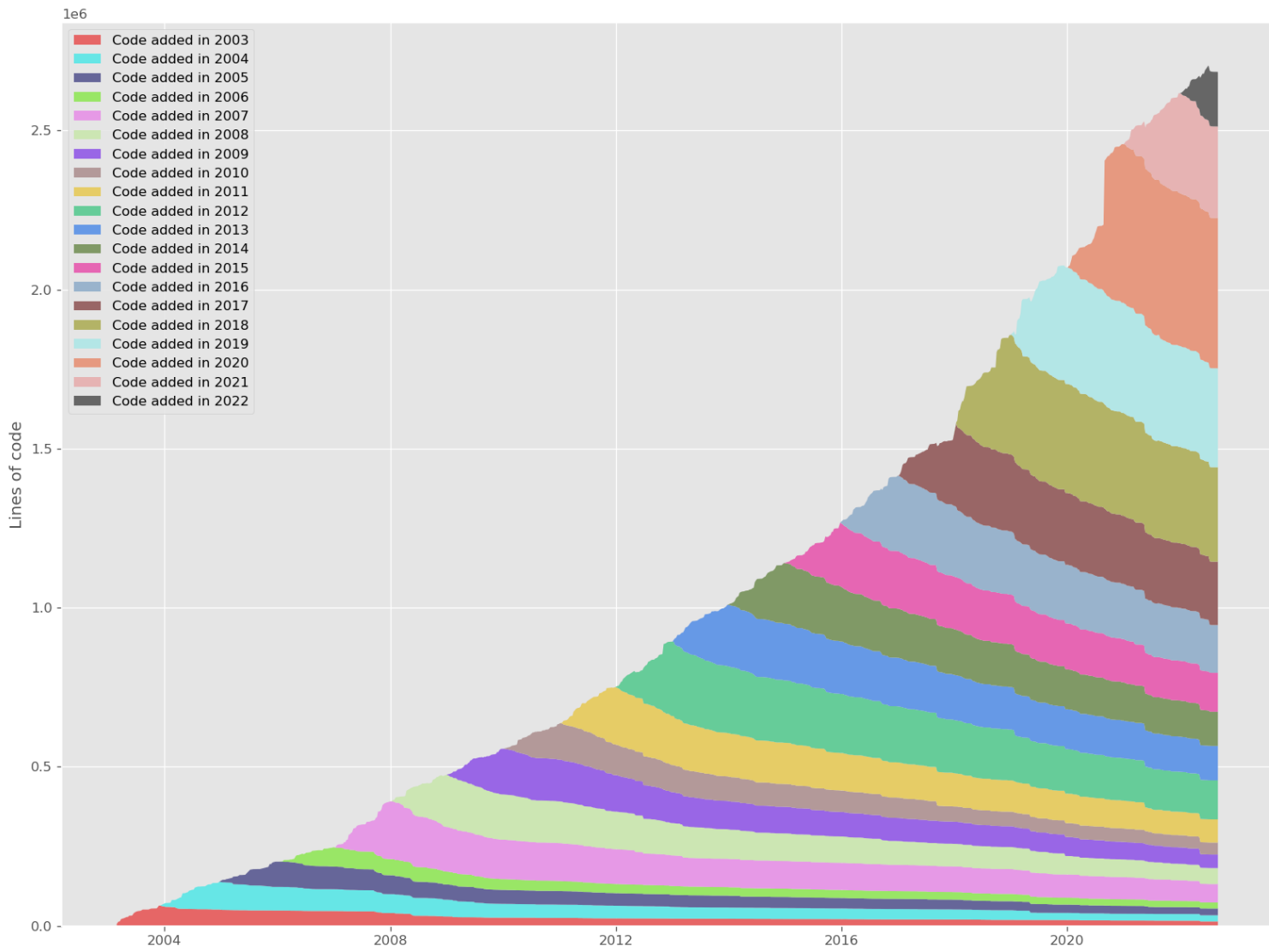
MOST ACTIVE TARGETS



CODE CHURN



LAYERS OF CODE



NEW FEATURES AND DEVELOPMENTS

BUILD SYSTEM

- Most compilation tests in Meson
- Cross-Compiler moved to ./configure
 - re-usable for firmware builds
- dockerfile migration to Icitool continues
- in-tree capstone dropped

HYPERVISOR SUPPORT

- HVF for Aarch64 on Macs
- KVM for RISC-V
- SGX for x86
- SynDbg support for HyperV

BLOCK

- VDUSE export added to qemu-storage-daemon

NEW DEVICES

- Compute Express Link (CXL)
- vfio-user support
- PMBus

NEW CPU EMULATIONS

- New Architecture: Loongarch
 - user and system emulation
 - tcg backend support

NEW CPU FEATURES

- RISC-V extensions
 - bit manipulation, crypto, vector
- PowerPC
 - ISA3.1, vector
- s390x
 - bitfield, vector
- Hexagon
 - vector

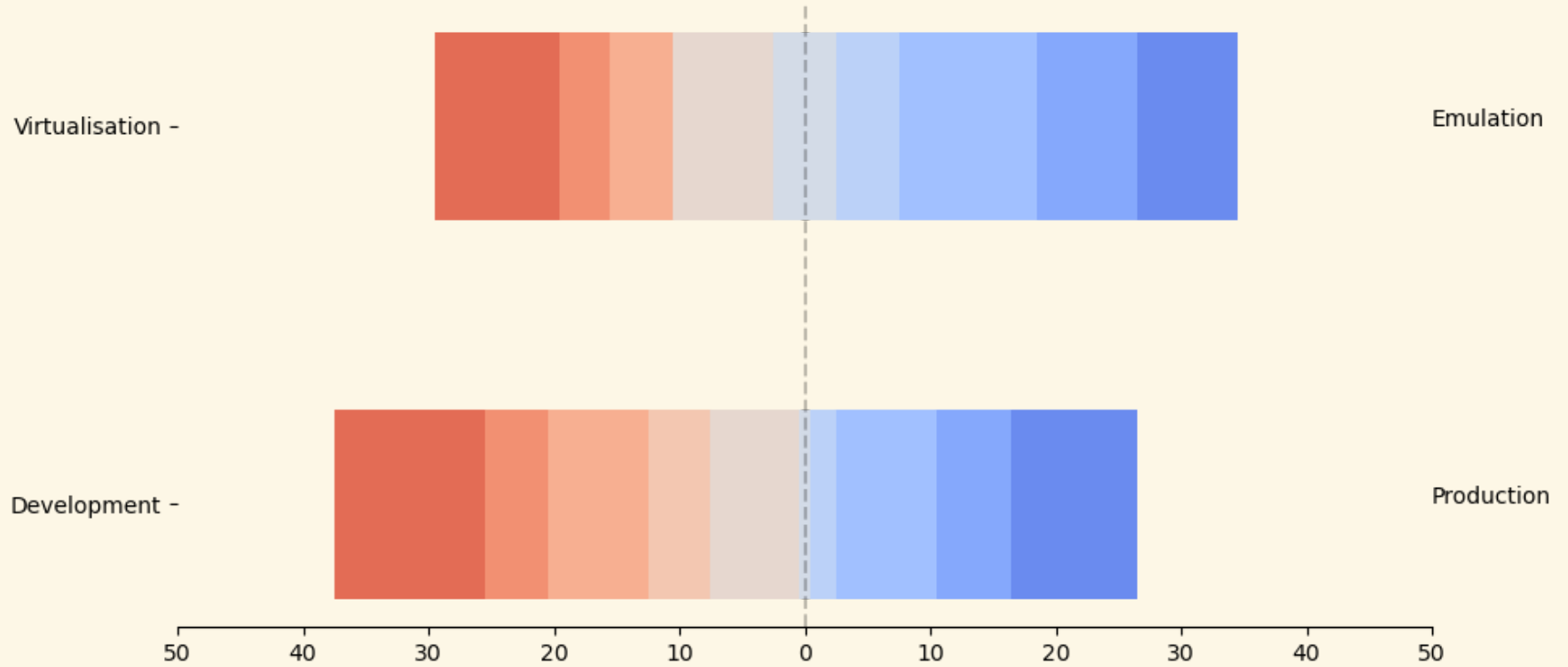
MORE CPU EXTENSIONS

- ARM models and extensions
 - cortex-a76 (v8.2+), neoverse-n1 (v8.2++), a64fx (v8.2+SVE)
 - Scalable Matrix Extensions (SME)

NEW MACHINES

- BMCs kudo-bmc, fuji-bmc, fp5280g2-bmc, mori-bmc, bletchley-bmc, ast1030-evb, fby35-bmc
- Virtual
 - OpenRISC virt platform
- Others
 - Canokey

MORE FROM THE SURVEY



CONTRIBUTORS

INTERNS (GSOC AND OUTREACHY)

NVMe Emulation Performance
Optimization

Jinhao Fan

Snapshot/restore for fuzzing with QEMU

richyliu

VIRTIO_F_IN_ORDER support for VirtIO

Zhi Guo

Zoned device support for virtio-blk

Sam Li

Extend aarch64 support for rust-
vmm/vmm-reference

Ramyak
Mehra

LEAGUE TABLES

TOP 5 BY CHANGESETS

Richard Henderson	1120 (14.9%)
Philippe Mathieu-Daudé	358 (4.8%)
Peter Maydell	334 (4.4%)
Paolo Bonzini	330 (4.4%)
Mark Cave-Ayland	256 (3.4%)

HEAVIEST DELETE KEY (LINES DELETED)

Thomas Huth	33756 (21.4%)
Paolo Bonzini	770 (0.5%)
Michael S. Tsirkin	256 (0.2%)
Yonggang Luo	138 (0.1%)
Bernhard Beschow	134 (0.1%)

MOST ACTIVE MAINTAINERS (SIGNOFFS)

Peter Maydell	608 (11.3%)
Cédric Le Goater	481 (8.9%)
Alistair Francis	459 (8.5%)
Michael S. Tsirkin	433 (8.0%)
Paolo Bonzini	388 (7.2%)

MOST ACTIVE REVIEWERS

Richard Henderson	1498 (17.3%)
Philippe Mathieu-Daudé	1087 (12.6%)
Peter Maydell	830 (9.6%)
Michael S. Tsirkin	488 (5.6%)
Alistair Francis	413 (4.8%)

TOP EMPLOYERS (BY LINES)

Red Hat	105608 (27.1%)
Linaro	66635 (17.1%)
IBM	29065 (7.5%)
(None)	20624 (5.3%)
Qualcomm Innovation Center	14075 (3.6%)

THANK YOU

- Alex Bennée
- <https://mastodon.org.uk/@stsquad>
- stsquad on IRC

"A portrait of an Emu. In the background many picture frames on various sizes hang on the wall. In each frame there is a magnified picture of a silicon cpu die showing the various functional blocks. digital art"

by DALL-E