

Tim Deegan

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SKILLS

I design and build operating systems components. I have produced fast and reliable filesystem code and hypervisor features.

I like to work on difficult technical problems, ideally in a small team of engineers. I'm looking for a collaborative environment where I can work with, and learn from, smart and enthusiastic people.

I'm proficient in C on unix, but I also enjoy assembler (x86 and ARM), and am happy writing kernel code. For higher-level work I prefer python, but have used perl, bash and ocaml in the past, and am always willing to learn something new. I'm familiar with the usual unix source control tools (git, mercurial) build systems (make, autotools), and debugging tools (gdb, valgrind). I use static analysis tools and performance profilers.

I have experience working with open-source communities, collaborating with other engineers and reviewing code. I enjoy mentoring junior engineers, and I supervise undergraduates for courses in operating systems and C. I blog on technical topics at blog.tjd.phlegethon.org.

Outside of working hours, I spend most of my time with my wife and primary school age son. We enjoy music, trips to nature reserves, and computer games.

EXPERIENCE

2011– SOFTWARE ARCHITECT, COHO DATA

At Coho Data, I work on the object storage layer of a storage array. I designed and implemented compression, checksumming, garbage collection and concurrency control features. I've worked on journalling and crash recovery, and on performance analysis. I'm also involved in the architecture and design of other parts of the product.

2006–2015 PRINCIPAL SOFTWARE ENGINEER, XENSOURCE / CITRIX SYSTEMS

I spent nine years on the core development team of the Xen hypervisor, both writing new code and reviewing designs and code for others.

I wrote (with Michael Fetterman and others) Xen's shadow pagetable code, which gave Xen a performance advantage over other hypervisors for some time. I then worked on many other parts of the system: emulator support for 'real mode' code, saving and restoring virtual CPU state, BIOS/firmware bugs, etc. I was involved in starting the new port to ARMv8 processors.

Although I am no longer a paid Xen developer, I'm still a maintainer for some parts of the code, and a member of the Xen project's security response team.

- 2001–2006 PHD STUDENT, UNIVERSITY OF CAMBRIDGE
My PhD thesis was on the DNS, suggesting a break between the administrative delegation of control and the distribution of the service itself. I measured how often records change in the public DNS and prototyped an improved nameserver.
- 2001 SECURE HOSTING SYSTEMS ADMINISTRATOR, BALTIMORE TECHNOLOGIES
I was part of a team running a high-security machine room. We hosted public-key cryptographic infrastructure for clients like mobile phone vendors, government departments and financial institutions.
- 2000 TECHNICAL HOSTMASTER, UNIVERSITY COLLEGE DUBLIN
I ran the computer systems for the .ie top-level domain, including databases, websites and DNS servers.

EDUCATION

- 2001–2006 PHD, COMPUTER SCIENCE, UNIVERSITY OF CAMBRIDGE
My dissertation is available at tjd.phlegethon.org/words/thesis.html.
- 1995–1998 BA, COMPUTER SCIENCE, UNIVERSITY OF CAMBRIDGE
In my final year I won the Olivetti and Oracle class prize.

SELECTED PUBLICATIONS

- Strata: High-Performance Scalable Storage on Virtualized Non-volatile Memory.
B. Cully, J. Wires, D. Meyer, K. Jamieson, K. Fraser, T. Deegan, D. Stodden, G. Lefebvre, D. Ferstay and A. Warfield.
Proc. 12th FAST, pp. 17–31, February 2014.
- Breaking Up is Hard to Do: Security and Functionality in a Commodity Hypervisor.
P. Colp, M. Nanavati, J. Zhu, W. Aiello, G. Coker, T. Deegan, P. Loscocco and A. Warfield.
Proc. 23rd ACM SOSP, October 2011.
- Melange: creating a ‘functional’ Internet.
A. Madhavapeddy, A. Ho, T. Deegan, R. Sohan and D. Scott.
Proc. 2nd EuroSys, March 2007.
- The Main Name System: An exercise in centralized computing.
T. Deegan, J. Crowcroft and A. Warfield.
ACM SIGCOMM CCR 35(5) pp. 5–13, October 2005.
- Facilitating the Development of Soft Devices.
A. Warfield, K. Fraser, S. Hand, and T. Deegan.
Proc. USENIX ’05, pp. 379–382, April 2005.