Timothy Gross   github.com/tgross

Tim Gross is a technical leader and engineer with 20 years experience building and managing software systems and the teams that operate them. As a software developer and operations engineer, he's demonstrated an ability to solve sociotechnical problems in organizations of all sizes. His previous experience with building secure architectural environments in the telecommunications and pharmaceutical manufacturing industries has inspired a focus on building rock-solid information systems, and given him the broad base of practical knowledge to make those systems align with business needs.

Professional Experience

HashiCorp, Inc
Senior Software Engineer, Technical Lead for Nomad Core   *July 2019-July 2021*
Led projects for Nomad, an open source workload orchestration system.
- Stepped in to lead at-risk Container Storage Interface implementation and delivered beta on-schedule as part of a Kubernetes feature parity effort.
- Led transformation of open source community GitHub issue management process, resulting in a doubling of the previous throughput.
- Invented minimal-coordination multi-cluster job deployment algorithm (US Patent Pending 17/370,448).

Machinist Labs, LLC
Founder   *May 2018-June 2019*
DevOps consultancy providing coaching and training to software engineering teams.

Instacart (Maplebear, Inc.)
Senior Software Engineer, Infrastructure   *Oct 2018 - May 2019*
Led infrastructure projects for the leading grocery delivery startup.
- Stabilized the legacy custom continuous integration and deployment system.
- Introduced techniques and tooling for *in-vivo* debugging with eBPF.
- Introduced configuration management for AWS hosts (Ansible and Packer), integrated with CI.
- Led introduction of lightweight async RFC processes for building cross-team consensus.

Density, Inc.
Principal DevOps Engineer   *Sept 2017-May 2018*
Led infrastructure and security projects for a IoT machine vision product.
- Designed and built continuous integration and deployment based on Nomad. Included embedded system builds, machine learning model verification pipeline, and web APIs; allowed for self-service build, test, and production deployment by developers without operations assistance.
- Designed and built infrastructure to support embedded system: telemetry collection, over-the-air updates, and PKI supporting secure boot.
- Hardened and audited AWS infrastructure. Reduced AWS costs by >50%.

Joyent, Inc.   *Sept 2015-Sept 2017*
Product Manager / Engineer
Led development of open source applications demonstrating Joyent's Triton cloud infrastructure, collaborated with open source communities, and worked in parallel with marketing and business

development. Joyent was acquired by Samsung in July 2016.
- Created and led open source development of ContainerPilot, used as a core orchestration component at HBC/Saks Fifth Avenue, Jet.com, HomeAway, and Optoro.
- Developed design patterns for self-assembling containerized applications, including leading community engagement: frequent speaker at conferences, gave workshops, wrote blog posts, and supported sales team discussions with prospects.

DramaFever, Corp.   *April 2012-August 2015*
Director of DevOps
Headed operations team of 6 and IT team of 2 for an online television network: 10+ million global users for DramaFever as well as AMC's SundanceNow DocClub and Shudder sites. Led design and development of entire infrastructure, from early stages through $100M acquisition by SoftBank.
- Managed Akamai vendor relationship, negotiating a $1 million annual savings in last contract.
- Designed and managed deployment of Docker in production (this project is a featured case study in the O'Reilly book *Effective DevOps* by Ryn Daniels and Jennifer Davis).
- Led multiple performance enhancement projects, including reducing core application costs by 70%, reducing analytics operating costs to <5% of original design, reducing DynamoDB costs by 50%, and reducing core application p99 latency by >70%.
- Managed incident response. Led after-action reviews, including translating the technical results to the senior leadership team.
- Led projects for site reliability and performance, including caching and query plan improvements and open source contributions to upstream libraries.
- Managed build-out of continuous-integration infrastructure w/ Docker, Fabric, Chef, and Jenkins.
- Designed internal networking for build-out of 50+ person NY headquarters, provisioned Internet connectivity, coordinated networking and electrical contractors.

LegalCap, Inc.   *Feb 2011-August 2011*
Lead Developer (Contractor)
Designed and developed prototype document management application targeting the legal profession. Prototyped backend Django application for document and template editing, account management and document conversion from user-uploaded content. Built initial development infrastructure.

The Burns Group (Burns Engineering, Inc.)   *Feb 2009-April 2012*
Software Developer, System Administrator, BIM Manager
In-house developer and sysadmin supporting engineering teams. Expert in Building Information Modeling (BIM), the use of information-rich 3D models to replace traditional engineering project delivery methods.
- Developed plugins for AutoCAD, in C#, that performed fuzzy comparison of engineering contract drawings vs prototypes to detect and automatically correct defects.
- Developed in-process functional testing framework for AutoCAD plugins, in C#.
- Developed IronPython scripting engine for engineering calculations and ported legacy mechanical/electrical engineering algorithms from GW Basic.
- Trained engineers in the use of Building Information Modeling software, and managers in the operational and liability impact of BIM. Acted as in-house consultant on CAD/BIM best-practices, automation opportunities, and Integrated Project Delivery.

Francis Cauffman Architects
CAD/BIM Manager   *Feb 2001-Nov 2008*
Developed software tools for construction estimation and planning tasks. Developed and implemented 3D

CAD and Building Information Modeling training program, including classroom sessions, consulting to project teams, and large pilot project. Developed prototyping system for rapid-delivery of CAD production.

Project Architect   *Apr 1999-Aug 2008*

Designed and delivered several mid-size ($10-20 million) projects in high-assurance industries including medical devices manufacturing, controlled-substance drug manufacture, biosafety laboratories, clean-room manufacturing, and telecommunications. Supervised 1-3 designers depending on project size.

Highlighted Skills

Languages	Expert in Go and Python. Proficient in Rust. Dabbler in C, Erlang, Elixir.
Environments	Linux, AWS, Joyent's Triton, Hashicorp's Nomad.
Technologies	Ansible, Chef, Fabric, Django, Docker, Flask, Nginx, Celery, Consul, MySQL, Postgres, DynamoDB, ELK, Graphite, Prometheus, Jenkins
Proficiencies	DevOps, CI/CD, distributed application design, networking, performance analysis

Community   see a full listing at: *https://blog.0x74696d.com/community/*

Lead organizer of PhillyPUG   *Feb 2014 - Jan 2015*

Selected Talks and Workshops

eBPF: a Quick Introduction to Production Super-Powers	*Philly DevOps, Jan 2019*
They Didn't Stop to Think If They Should (Ethics in ML and IoT)	*DevOpsDays MSP, Jul 2018*
Debugging Python in Production	*PhillyPUG, Nov 2017*
Designing Self-Orchestrating Applications (workshop)	*DevOpsDays MSP, Jul 2017*
Software Defined Culture (opening keynote)	*DevOpsDays Philly, Oct 2016*
Full Stack Metrics w/ Native Prometheus Support	*PromCon Berlin, Aug 2016*
Stateful Applications on Autopilot	*Velocity Santa Clara, Jun 2016*
Docker Production Training (workshop)	*ContainerSummit LV, May 2016*
Framework Agnostic Discovery	*KubeCon, Nov 2015*
Introduction to Python for Women and Their Friends [workshop]	*PhillyPUG, Mar 2013, Aug 2014*
Docker: Training Wheels for LXC	*Philly DevOps, Feb 2014*

Selected Open Source Contributions   see also *https://github.com/tgross*

PLAN tools: prototype for peer-to-peer storage layer, security threat modelling
ContainerPilot: init system for self-assembling containerized applications, original project lead
Autopilot Pattern blueprints: design patterns for applications using ContainerPilot
django-cache-machine: Contributions for multiple-database support and testing
GilaMon: WMI-based monitoring agent for Windows DFSR

Education

Drexel University   *attended 2010-2012*

Major in Computing & Security Technology (Security concentration).

Philadelphia University   *attended 1995-1998*

Major in architecture, minor in environmental science. Founded / co-chaired Green Planning Committee.