Joshua Bicking

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EXPERIENCE

DATTO INC.

Software Engineer I in Engineering Productivity

March 2020 – Present | Rochester, NY

- Extended our libvirt cluster manager solution with **simple, fast, ZFS-backed VM snapshots**. Enabled **"replaying" actions in VM scenarios**, implementation of a speedy VM "hotpool", & VM rollback for reuse. Enhanced scenario reproducibility, greatly benefiting product reliability.
- Wrote a **highly available Kubernetes manifest** for test reporting & visualization software. Generated with Jsonnet & deployed with Helm. Enabled reliable and scalable test reporting for several teams.

Associate Software Engineer in Engineering Productivity

May 2019 – March 2020 | Rochester, NY

- Included a **flexible provisioning system in** our automated VM deployment service, allowing for **effortless extension & customization**.
- **Designed a single-table inheritance model** for various VM representations. **Orchestrated migration** of live multi-table inheritance data to this new model.
- Utilized the above representation & configuration options to **seamlessly integrate** an existing, legacy VM deployment service.
- Built & deployed a long-term testing environment for Datto's backup appliance, complete w/ **monitoring tools & reporting**. Enables understanding of device health in the long-term, & will assist in **deciphering complex issues** seen in the field.
- **Lead framework design & development** for Datto's backup agent software, through much cross-team collaboration. Empowered **explicit, automated end-to-end test scenarios** for the teams assisted.

MACHINES NEVER SLEEP LLC | *Chief Technical Officer*

Jan 2019 – Present | Rochester, NY

- Machines Never Sleep LLC is a cybersecurity startup that designs, implements, & hosts various research projects. Focused on **Internet-scale data collection & analysis**.

DATTO INC. | *Software Engineer in Quality Assurance Intern*

Jan – Aug 2018 | Rochester, NY

- Built a RESTful API to **automatically create example partner environments & configurations**.
- Assisted in building a framework to leverage this service. Facilitated testing Datto's flagship product with **rigorous, varied, real-world scenarios**.
- Extended agent software with automatic MSSQL installation and DB load configuration options, **increasing reliability** of Datto's service validation.

BAYER RADIOLOGY | *System Software Verification & Validation Intern*

June – Aug 2017 | Indianola, PA

- Designed & implemented a tool to complement device test scenarios, parsing and reporting their results. Transformed **~40 hours** of manual log reading into **~20 minutes** of automated testing.

EDUCATION

ROCHESTER INSTITUTE OF TECHNOLOGY | *B.S. in Computer Science*

Aug 2015 – May 2019 | Rochester, NY | 3.7/4.0 GPA | Dean's List (6/7 semesters)

Brickhack (RIT hackathon) participant & Sponsorship team member. Women in Computing Hackathon volunteer. RIT Linux Users Group Treasurer & frequent speaker.

PROJECTS

SPEEDWAGON | *Web-based RSS reader & aggregation server*

Backend is a versioned, RESTful API built with Rust + Rocket, using Postgres + Diesel for state management. This multi-user platform supports source filters & organization via tagging.

PI-DIGITS | *Configurable Nth digit of Pi calculator*

Implementation of the BBP algorithm, built with Haskell & optparse-generic. A full-fledged example of using lazy evaluation as a "free" cache, complete with various formatting & output options.

FALLOUT-TERMINAL | *Customizable, text-based word game*

Originally built with C & ncurses, with configurable options, words, and completion actions. Rewriting with Rust & pancurses, enabling greater customization with a cleaner backend model.

FOODTRAX | *Food truck tracker*

A project to locate & display food trucks in real time. Frontend powered by Google's Map API. Wrote firmware for the Particle.io Electron + GPS tracker module, sending real-time updates to the backend.

CRUCIBLE | *"Gamified" self-improvement app*

A cross platform social media & habit tracker, powered by Ionic. Handled Facebook profile integration in-browser as well as in the Android app.

SKILLS

LANGUAGES

Confident in Python from 2+ years of professional experience. 1 year of professional **Golang** experience. Frequent use of **Bash** & **Powershell** throughout.

Learning Rust & **Haskell** through assorted hobby projects, exercises, and giving tech talks.

Familiar with C from some hobby projects & college courses. Used **JavaScript** during 2 hackathons/hobby projects. Some exposure to **Java** & **Assembly (MIPS, x86)**.

OPERATING SYSTEMS

Used **Linux** (Debian & derivatives) for business, development, and personal use.

Utilized **ZFS** on Datto's backup storage appliances & on a libvirt cluster manager for VM snapshots, as well as personal storage.

Familiar with **Windows** automation & orchestration, to create customer environments.

ORCHESTRATION & DEPLOYMENT

Wrote, modified, & deployed numerous **Helm** charts onto an internal **Kubernetes** instance.

Provisioned monitoring environments & libvirt nodes with **Ansible**.

Leveraged **Cloud-init** to parametrize ephemeral WIndows & Linux VMs.

VIRTUALIZATION & CONTAINERS

Built & deployed **Docker** images for several apps, using **Docker Compose** configurations to tie them together.

Leveraged the **Libvirt** API & XML configurations in a distributed Libvirt cluster, for on-demand VM creation & fast snapshots.

Familiar with other hypervisor APIs, including **vSphere** & **Openstack**.

FRAMEWORKS

Experienced writing extensible **Pytest** plugins & best utilizing its fixture system.

Redesigned an app's usage of **Django** models & **Django REST Framework** views.

TOOLS

Heavily use **Mypy** to verify applications & extend Python's type system.

Utilized **Jsonnet** to easily & safely template Helm charts.

Seasoned with **Git** & **Gitflow** for team collaboration.

Used **Gitlab CI** for automatic linting, testing, building,& deploying of applications.

Familiar with **OpenWRT**'s toolset & package building system.