David Antonini

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Summary:

A former healthcare worker turned Python developer and DevOps engineer. My interest in the space has led me to become a PyTexas organizer for the last few years. A lot of projects I participate in are large data and service infrastructure clients, this has expanded my skill set from pure developer to include DevOps automation to facilitate ETL of data and wide exposure to public cloud services.

Programming Languages:

● Python	7 years
● SQL	5 years
● Jinja2	4 years
● Bash	4 years

Projects:

❖ **DRP/BCP consulting (March 2024 - present)**
  ➢ Discovery and evaluation of global manufacturer's current DR/BC preparedness
  ➢ Deep analysis of client's documentation/testimony to determine capabilities
  ➢ Assessment of preparedness under diverse permutations of disaster events
  ➢ Make recommendations for improvements and create plans for implementation
  ➢ Create DR deep analysis checklist

❖ **SQL Stored Proc App to Python API (April 2023 - May 2024)**
  ➢ Creating backend Flask APIs for frontend PWA
  ➢ Translated large amounts of MS SQL stored procedures and MS Access BASIC code/SQL into python/SQLAlchemy.
  ➢ PoC and implementation of temporary table paradigm in sqlite and PostgreSQL dbs using python/SQLAlchemy

➢ Implemented resilient and flexible migration tooling to transfer divergent MS SQL schemas into a standardized PostgreSQL schema
➢ Implemented rigorous API request validation
➢ Implemented automated generation of API documentation
➢ Create wikis, onboarding and advising new developers to take over project

❖ Plugin Secrets to Salt (Jan 2024 - Feb 2024)
➢ Created a functional external pillar allowing integration of AWS Secrets Manager secrets with Salt pillar so that secrets are never stored on disk in the salt-managed infrastructure
➢ Reverse engineered the mechanisms for the prominent HashiCorp Vault external pillar module used in the open-salt project.
➢ After considering Vault implementation, several features were set aside as low value for the business needs of a AWS secrets manager integration with salt pillar.

❖ Distributed Computational Platform Proposal (April 2023)
➢ Design proposed architecture for managing a distributed computational application in a data center
➢ Evaluate multiple bare metal provisioning options, including MAAS, KVM
➢ Support multiple guest OS (Windows, Ubuntu)
➢ Architect to be extensible to cloud infrastructure for scaling and disaster recovery

❖ CIS and STIG instruction set generator (Dec 2022 - April 2023)
➢ Saltstack development
➢ Innovation of new paradigm for state generation and management
➢ Writing sophisticated configuration management salt states
➢ Write python code to programmatically generate salt states based on structured inputs
➢ Programmatic integration of Salt, jinja, regex, bash based on heuristically derived input
➢ Develop resilient regex for file discovery and manipulation tolerant to large variances in context and syntax
➢ Generate syntactically compliant nested regex, jinja, yaml

❖ Salt ssh failover automation (Nov 2022)
  ➢ Developed a Proof of Concept to use initial minion instantiation to trigger auto configuration of the backup salt-ssh connection for failover communication to resources
  ➢ Demonstrated an automation flow utilizing the auth event in the salt master's 0mq's bus to use reactor activated configuration states for a successful ssh connection

❖ PyScript PoC/blog (August 2022)
  ➢ Generate PoCs in new PyScript framework
  ➢ Implement dynamic loading of data file and python code in html via Pyscript.
  ➢ Write blog demonstrating working interactive PyScript elements

❖ Port legacy monolith to modern cloud (May 2022 - August 2022)
  ➢ Undertake detailed discovery of client's server-vm-based systems and requirements
  ➢ Research offerings satisfying requirements in desired cloud provider
  ➢ Create cloud-based substantially serverless architecture for client's systems
  ➢ Create detailed plan for transitioning from server-vm-based to cloud-based serverless architecture

❖ Port and manage national franchise website (May 2022 - present)
  ➢ Took over client's legacy frontend website/backend api codebases
  ➢ DevOps engineering transitioning client to new managed infrastructure
  ➢ Interface with client and coordinate maintenance tasks and feature improvements
  ➢ Oversee development and implementation of DR procedures (specifically vendoring dependencies, alternate hosting), coordinate DR exercises
  ➢ Respond to outages and fix issue due to third party errors
  ➢ Manage developers maintaining client's website/systems

❖ Rancher Longhorn evaluation (March 2022)
  ➢ Evaluating Rancher's kubernetes offerings
  ➢ DIscovery and testing to determine engineering effort required to use Rancher for deployment on multiple clouds
  ➢ Experimenting with Longhorn storage across multiple clouds
  ➢ Present findings to clients

❖ Anaconda platform ecosystem deployments (Sept 2021 - March 2022)
  ➢ Developed multi-cloud compatible Kubernetes persistent storage Helm charts
  ➢ Deployment of Anaconda Teams Edition on various cloud platforms/OS', creation of runbooks/documentation for installation on cloud providers in linux distributions
  ➢ Conversion to run application using Podman instead of Docker and docker-compose
  ➢ Creation of AWS AMIs
  ➢ Creation of pre/post install validation and debugging scripts
  ➢ Investigated use of external GCP db
  ➢ Packaging with conda/pip

❖ Developed Qhub Golden image, backup system (June 2021 - Sept 2021)
  ➢ Deployment on various hardware/configurations (GCP/AWS/Digital Ocean)
  ➢ Finding/troubleshooting bugs
  ➢ Worked on data backup implementation
  ➢ Converted legacy debian based Docker images to Ubuntu

❖ Misc Terminal Labs projects (May 2021 - present) - Python/DevOps Engineer
  ➢ Dask and distributed Dask scaling
  ➢ Benchmarking Dask workers on varied hardware and configurations
  ➢ Developing Salt states for python/dask with miniconda
  ➢ Development of experimental kubernetes application
  ➢ Developed API server with FastAPI to serve GET endpoints to validate networking between containers within kubernetes cluster.
  ➢ Developed CI/CD pipelines testing FastAPI app, containerizing and pushing to Dockerhub for deployment using Helm.
  ➢ Using Bazel to build C++

❖ Dionysus charts (Sept 2022 - May 2021, in maintenance)
  ➢ app for teachers to chart test scores using 'secret' avatars rather than student names, for privacy purposes
  ➢ Python, JSON, SQL, SQLAlchemy, Tkinter
  ➢ Learned to set up and integrate CI pipelines, coverage, code quality tools, implement effective versioning
  ➢ JSON, argparse, OOP, basic Tkinter GUI elements, converted from unittest to Pytest.

➢ Originally implemented in a fully functional paradigm, then incremental conversion to OOP, using an abstracted database to support varied db backend implementations (eg JSON files, SQLite)
➢ Review and manage community contributions

❖ probable_immunity (June 2019 - Oct 2020)
  ➢ Tool evaluating risk of illness without/after immunizations, vaccine efficacy.
  ➢ Python, jinja, HTML
  ➢ Learning/testing Flask web apps, Flask-WTF forms, basic HTML/CSS.

❖ Personal website (February 2022 - March 2022)
  ➢ Create personal website, incorporating contact form and db, automated notifications
  ➢ Python, HTML, CSS, javascript
  ➢ Deployed on pythonanywhere
  ➢ Learned further flask testing, db in a webapp, automated email, more sophisticated HTML/CSS.

❖ XKCD_archiver (May 2018 - Dec 2019)
  ➢ Twist on web scraping starter project to archive images/metadata from the xkcd webcomic using python
  ➢ Used the site's web API serving JSON data, threading to download images directly rather than scraping HTML.
  ➢ Learned to use requests, parse JSON, effectively employ threading, limited Tkinter.

Education:

  ❖ Google IT Automation with Python Professional Certificate (2020) at Coursera
  ❖ Google IT Support Professional Certificate (2018) at Coursera
  ❖ Pursued double Bachelors in Communications & Cultural Studies and Art at Curtin (2007-2009)
  ❖ Pursued double Bachelors in Physics and History at UWA (2003-2005)

Tools & Applications

Python Data:
- SQLAlchemy
- Matplotlib

Python IaC:
- Docker
- Virtualenv

Python Utility
- Requests
- Pyyaml
- PyTest
- Mypy
- Pathlib
- flask_wtf

Text Editors:
- Nano
- Atom
- PyCharm
- VSCode

CI/CD
- GitHub actions
- GitLab CI/CD
- Appveyor
- CircleCI
- TravisCI
- Codeship

Frameworks
- Flask
- FastAPI
- Kubernetes

DevOps:
- Vagrant
- SaltStack
- Virtualenv
- Conda/miniconda
- Docker
- Rancher

Operating Systems:
- Ubuntu
- Debian
- CentOS
- Windows
- Redhat
- SUSE

Package Managers
- yum
- apt
- Snap
- npm
- Pip
- Conda
- zypper

File Storage:
- Google Drive
- Dropbox
- S3

Database Systems:
- SQLite
- PostgreSQL
- MS SQL

Providers:
- Digitalocean
- GCP
- Azure
- AWS
- Netlify
- Heroku

Conference Software:
- Google Meet
- Zoom
- Discord
- Webex
- Skype
- MS Teams

Version Control:
- Github
- Gitlab
- Git

Security Tools:
- LetsEncrypt (SSL/TLS)
- Certbot