

Andrew William Gibbs

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Bio

Andrew is an inveterate skunkworks engineering leader with a track record and passion for helping organizations of all sizes reimagine how they solve their hardest problems. His experience spans the public and private realms, massive and tiny companies, enterprise and commercial development, and sectors that include Defense, Finance, Medicine, and Technology. A data wrangler, security warrior, DevSecOps evangelist, cloud expert, distributed systems veteran, platform architect, community builder, and product visionary, he possesses the wealth of experience as well as the curiosity and humility to bootstrap complex endeavors and carry them to fruition.

Day Jobs

GDTS, LLC

Sole Proprietor, Consultant (see "Consulting Engagements")

Draper, UT

03/2020 - present

Finite State

Chief Architect

Columbus, OH

02/2019 - 03/2020

- Delivered a data processing architecture that allows cost-effective processing and rapid innovation
- Delivered a data storage architecture that empowers data scientists to quickly validate hypotheses
- Reduced costs and improved reliability by partitioning workloads and leveraging elastic scalability
- Accelerated reductions in hosting costs through infrastructure-as-code and automated resource tagging
- Took the team from infrequent and expensive releases to high-velocity Continuous Deployment
- Played a pivotal role in the company's release of the highly impactful Huawei Supply Chain Assessment

Bridgewater Associates

Data Engineer, Security Engineer

Wilton, CT

08/2016 - 02/2019

- Built a Continuous Deployment pipeline that dramatically accelerated Security Engineering velocity
- Played a key role in the delivery of an analytic-driven and incident-free company-wide NAC roll-out
- Designed and built a real-time security analytics system that processed all inbound email
- Automated the safe detonation of potentially malicious payloads identified in this data stream
- Catalogued comprehensive meta-data that enabled rapid and efficient detection, response, and forensics

Department of Defense, Grades 13-15, TS-SCI Cleared w/ Full-Scope Poly

Software Engineer, Team Lead, Product Owner, Architect

Fort Meade, MD

02/2009 - 08/2016

- Designed and led the build-out of an analytic-driven real-time CNO command-and-control system
- Navigated this system's journey from targeted application to widely used general purpose platform
- Played an outsized role in a golden era of operations automation and mission management codification
- Developed rich telemetry that dramatically improved operational effectiveness and system availability
- Empowered individual operators to do in minutes what previously required large teams several days

Department of Defense, Grades 11-13, TS-SCI Cleared w/ Full-Scope Poly

Software Engineer, Team Lead, Product Owner, Architect

Fort Meade, MD

06/2005 - 08/2009

- Designed and led the build-out of a flow-based plug-in oriented analytic integration platform
- Projected an assortment of repositories and techniques into this system's data bus
- Built an in-browser workflow editor that allowed their creation without conventional programming
- Ultimately empowered analysts to quickly build, field, and share complex analytic workflows
- Created efficiencies around oversight and compliance by codifying integration and auditing techniques

National Institute of Standards and Technology
Software Engineering Intern

Gaithersburg, MD
05/2004 - 08/2004

- Improved the NSRL's flexibility by decoupling its data warehouse from downstream ingestion protocols

Tufts University, Health Sciences Schools
Software Engineer

Boston, MA
10/2000 - 08/2003

- Co-designed and implemented a system for course evaluation authoring, submission, and reporting

Microsoft
Software Engineering Intern

Redmond, WA
05/2001 - 08/2001

- Designed and implemented an automated test suite for Windows XP's Dynamic Update sub-system

Compaq
Software Engineering Intern

Shrewsbury, MA
05/2000 - 08/2000

- Enhanced the scripting interface to a circuit analysis tool to speed up Alpha chip design iteration

Consulting Engagements

Dragos

2020 - 2023

- Prototyped and productized a DevOps toolchain now used in countless products across the company
- Various lead or supported efforts to port legacy systems to the aforementioned toolchain
- Continually evolved the aforementioned toolchain in response to internal customer demands
- Developed a cloud-based "vending machine" to provision platform instances to internal customers
- Developed a system that transparently centralizes CloudWatch Logs from all accounts and regions
- Provided a comprehensive company-wide assessment of technology and process maturity within AWS
- Spearheaded an AWS Savings Plan approach that saves the company millions annually
- Developed a router of STS tokens from AWS to Hashicorp and Atlassian to harden CI/CD pipelines
- Designed the company's standard AWS resource tagging policies and built supporting tooling
- Designed and implemented an AWS Organizations-wide collection and analysis framework
- Wrote corresponding plug-ins to assess credential usage, tagging compliance, cost efficiencies, etc.

Cedar

2021 - 2023

- Performed a comprehensive analysis of data processing system performance spanning the PostgreSQL RDBMS, Django ORM, job management systems, and infrastructure configuration
- Diagnosed and resolved key performance bottlenecks that let crucial initiatives launch on time
- Designed and ran a bake-off between various observability systems to integrate with company systems
- Designed and implemented a DataDog forwarder sidecar in ECS with FireLens, Fluentd, and Lua
- Addressed risks of PII/PHI spillage to DataDog with layered encryption, scrubbing, and purge
- Performed a comprehensive analysis of existing application layer encryption and hashing techniques
- Designed and POC'd a next-gen implementation with AWS KMS that satisfied a long list of requirements
- Modified existing libraries to support old and new encryption schemes simultaneously and transparently
- Developed a zero-downtime orchestrator to bulk re-encrypt and hash data efficiently and regularly
- Validated the correct function of this subsystem with client's medical and billing information systems

Redacted

2020 - 2022

- Interviewed engineers, reviewed documents, and analyzed systems to provide critical feedback on existing systems and wrote comprehensive recommendations on migrating from on-prem to AWS
- Later performed a similarly structured review-and-recommend to assess and course-correct progress as well as expand the scope into general DevOps and Data Engineering challenges
- Provided an assortment of domain expertise on an ongoing and ad hoc basis between major activities

Negotiatius

2021

- Performed stopgap functions while the client backfilled the VP Engineering and built a DevOps team
- Performed a comprehensive systems security evaluation for client systems living within AWS
- Diagnosed and resolved an assortment of PostgreSQL RDBMS performance issues

Fenrir

2014

- Provided system architecture consultation to a small financial analytics company

Partners Healthcare at Massachusetts General Hospital

2009 - 2010

- Reviewed database structure for radiology case management system and designed myriad improvements
- Developed a background job management system for asynchronous ingestion of data into this system
- Developed software for automated generation of PowerPoint documents from this system's content

G2 Web Services

2006

- Provided key data architecture support during bootstrap phase of this company
- Solicited requirements for and developed the UX of brand protection analyst workflows
- Evaluated and extended the relational database backing of these analytic workflows

US School Of Commercial Music

2002 - 2003

- Full-stack ground-up development of a custom solution for customer relationship management

Open Source Contributions

- Perl DBD::Mock patch set, tests, and documentation incorporated into v1.32 release on CPAN (2005)

Education

Johns Hopkins University, Whiting School of Engineering
MS in Security Informatics, MSE in Computer Science

Baltimore, MD
09/2003 - 05/2005

Tufts University, School of Engineering
BSE in Computer Science

Medford, MA
09/1998 - 05/2002

Core Technical Competencies

- Languages: Python, Ruby, Java, SQL, Bash, Terraform, CloudFormation, JavaScript, C, Perl
- Platforms/Tools: AWS, Linux, PostgreSQL, Spark, Git, Docker, Rails, Django, Splunk, Atlassian, Gitlab
- Concepts: Big Data, Data Governance, Systems Integration, DevSecOps, CI/CD, Distributed Systems, Operating Systems, Cryptography, Network Security, IAM, CNO, Information Assurance, National Security