Andrew (Drew) Paettie - Full Stack Software Engineer

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Skills

Backend Architecture

6 years of experience in leading development of green-field microservices using patterns such as:

- **Domain and Test Driven Design**
- **RESTful APIs**
- **ADRs** (Architecture Decision Records)
- **OpenAPI** specifications (aka Swagger)
- **Diagrams as Code** (mermaid, PlantUML)

Programming Languages

10 years total professional experience

- **Java** (*6 years*): JUnit, Spring Boot, Micronaut, Android, Tomcat, Gradle, Maven.
- **JavaScript** (*8 years*): Node, TypeScript, Jest, Cucumber, Yarn, NPM, knex, React.
- **Python** (*6 years*): locust.io, scikit-learn, pytest, pypi, FastAPI, SQLAlchemy, poetry.
- **C#**, **C, C++** (*<1 year*): Limited academic and review experience. Can generally read it.

Frontend Development

8 years of experience with web based GUI development using JavaScript, HTML, and CSS using frameworks like React, Redux, jQuery, Jest, and Angular. Generally this was done for internal tool development, not public facing resources.

Operational Expertise

- **Containers** *(7 years*): Docker, Docker Compose, Nomad, ECS, Kubernetes.
- **Infrastructure as Code** (*7 years*): Terraform, CloudFormation, SAM, BASH, Ansible.
- **Security Testing & Hardening** (*10 years*): Peer review, Pen testing tools like burp, SAST, DAST, SCAP
- **Monitoring** (*7 years*): DataDog, SumoLogic, NewRelic, CloudWatch, Splunk, SignalFX.
- **CI/CD** (*9 years*): GitLab, Jenkins, CircleCI.
- **Zero Downtime Deployments** (*8 years*): Feature flags, canary deployments, release management.
- **AWS** (*8 years*): S3, EC2, Lambda, API Gateway, CloudFront, Route53, RDS, EKS, VPC, Governance such as Config, Control Tower.
- **On-Prem** (*4 years*): Ansible, Puppet.
- **Linux** (*20 years*): Ubuntu and other distributions (use and admin, not kernel development).

Data Persistence

- **SQL** (*7 years*): Oracle, Postgres, MySQL, SQL Server, H2, AWS Aurora (serverless).
- **NoSQL** (*3 years*): DynamoDB, Redis, MongoDB.
- **Search** (*3 years*): Elasticsearch, Lucene.

Messaging Systems

Total 4 years of experience with messaging technologies: SQS, RabbitMQ, and Kinesis.

Software Engineering Work Experience

Senior Software Engineer at Blue Origin (Oct 2021 - September 2024)

DevSecOps Technical Lead - Lunar DevSecOps Team

- Architected, implemented, and administered Linux-based software development platforms authorized for CUI (Controlled Unclassified Information, see also NIST 800-171).

- Developed System Security Plans (SSP), and Plans of Action and Milestone (POAM), automating processes to streamline compliance.
- Established a Secure Development Framework (NIST 800-218) aligning development tasks with standards such as NIST 800-53 and NASA 7150.2D.
- Designed and implemented web-based risk management frameworks for communicating security standards to stakeholders, improving adoption and consistency.
- Led security reviews for peer Merge Requests and OSS dependencies.
- Conducted security assessments for on-prem data centers, supporting hardware-in-the-loop testing for NASA's Artemis V mission.
- In collaboration with engineering stakeholders, designed, roadmapped, and began implementation on cloud based software deployments for verification of flight software.

Site Reliability Engineering (SRE) Lead - Lunar Mission Operations Team

- Designed a Zero Trust Architecture (NIST 800-207) for Lunar Ground Control Systems, focusing primarily on software infrastructure and cloud native technologies such as Kubernetes, inspired by DoD's Platform One.
- Built a streamlined Linux-based dev environment, offering a "click-button" provisioning system for engineers.
- Defined functional requirements and developed end-user documentation, ensuring the system met KPIs.
- Established CI/CD pipelines and templates, achieving organizational firsts for GitLab CI/CD runner management.
- Supported the MK1 Lunar Lander mission (https://www.blueorigin.com/blue-moon/mark-1).
- Led development of golden images for OCI (docker container images) and AMI (AWS VM images) using technologies such as AWS Image Builder and SCAP.

Site Reliability Engineering (SRE) Team

- Administered and stabilized developer tooling (GitLab, Artifactory, Jira, Confluence) through infrastructure optimization.
- Developed an update process which delivered 90% reduction in vulnerability remediation time.
- Reduced CI pipeline execution time through k8s performance analysis, saving about 20,000 engineer hours annually (~$2M).
- Drove security compliance for ISO-27001, CMMC, and FIPS, and led key project management and architectural efforts related to standards compliance.
- Developed Kubernetes-based architecture templates, enhancing deployment efficiency.
- Administered Rancher based kubernetes platform, working closely with engineers who deployed to it for troubleshooting deploy issues.

Senior Software Engineer at Nike (Aug 2019 - Aug 2021)

Global Payment Team - [Initially Contracted through Randstad, converted to FTE]

- Designed multi-region cloud payment services, ensuring high availability and reliability in AWS.
- Conducted chaos engineering tests to improve system resilience in a serverless environment.
- Led initiatives to launch services in China's AWS (aws-cn), ensuring compliance with regional regulations.
- Focused on security hardening, preventing vulnerabilities and securing customer data.
- Built highly scalable APIs in Java and Node.js, implementing layered testing strategies (unit, integration, and behavioral tests).
- Spearheaded safe deployment practices using AWS's canary traffic-shifting for Lambda functions.
- Mentored junior engineers, fostering a culture of pair programming and collaborative learning.

Retail Services Team [Contracted through Randstad]

- Implemented active-active HA strategies, significantly improving service reliability across regions.
- Identified and removed $10k/month in operational overhead through Elasticsearch efficiency improvements.

Software Engineer/Tech Lead at Cox Automotive (May 2015 – Aug 2019)

Data Solutions Team

- Acted as technical lead, driving technology and architectural decisions.
- Created standardized vehicle language for use in multiple business units.
- Created single point of ingestion, maintenance, and viewing for vehicle catalog data.
- Simplified complicated configuration logic expressions by searching for tautologies, and removing unsatisfiable expressions using MinSAT.
- Participated in RESTful API design with direct feedback from internal consumers.
- Automated functional integration testing using localstack and CircleCI.
- Defined standards for documentation and code quality through pair programming and formalized code review processes.
- Participated in the design and implementation of infrastructure for managing cloud deployments using technologies such as Consul, Nomad, Terraform and Docker.
- Installed monitoring and alerting to get increased visibility into key performance indicators using PagerDuty and DataDog metrics.

Dealer.com Inventory Team

- Promoted into technical lead, driving technology and architectural decisions.
- Created system to migrate image hosting to AWS cloud services via S3 and EC2.
- Member of scrum team which develops and maintains microservice applications which aggregate and serve vehicle data in a scalable way.
- Migrated core systems to a more modern tech stack for better maintainability and performance (Spring 3 to Spring-boot with Spring 4, Java 7 to Java 8).
- Integrated with automated deployment tools to support continuous deployment and integration.
- Installed monitoring and alerting to get increased visibility into key performance indicators using PagerDuty and NewRelic APM.
- Created internal full stack web applications to ease troubleshooting issues and testing .

Dev/Ops Intern at Capitalsoft, Inc (March 2014 – May 2015)

- Generally participated in front-end and back-end development of J2EE application (Java 6).
- Designed and implemented interfaces for GIS management using jQuery and JSP.
- Implemented ANT build process which cut build time by 75%.
- Implemented automated regression testing system using Selenium.
- Setup and administered servers for SVN, Bugzilla, Oracle Database and Weblogic.
- Full time job done at the same time as last year of Computer Science degree.

Education

The University of Texas at Dallas

- Graduated with B.S. Computer Science in December 2015
- Areas of study include: Data Structures, Discrete Math, Algorithm Analysis, ML, AI, Network Security

Additional Employment History and References available upon request.

For more detailed Skills listing, see https://andrewpaettie.com